
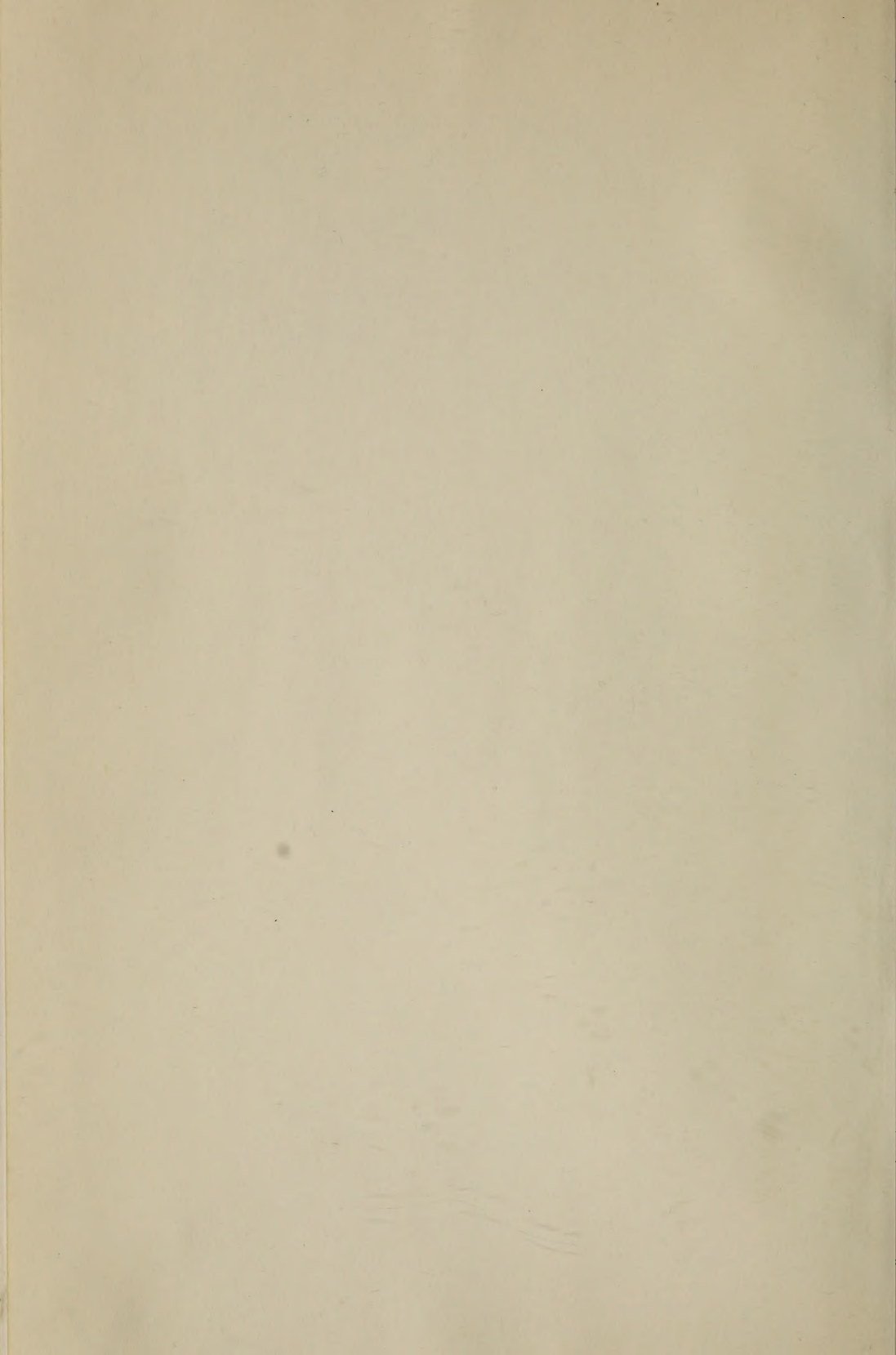


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VOLUME 10.

FOURTH SESSION OF THE FIFTH PARLIAMENT

OF THE

DOMINION OF CANADA.

SESSION 1886.

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OF THE

PARLIAMENT OF CANADA.

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CONTENTS OF VOLUME A.

Census of the Three Provisional Districts of the North-West Territories, 1884-85—

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CONTENTS OF VOLUME No. 1.

1. Tables of the Trade and Navigation of the Dominion of Canada, for the fiscal year ended 30th June, 1885. Presented to the House of Commons, 1st March, 1886, by Hon. M. Bowell—

Printed for both Distribution and Sessional Papers.

CONTENTS OF VOLUME No. 2.

2. Public Accounts of Canada, for the fiscal year ended 30th June, 1885. Presented to the House of Commons, 1st March, 1886, by Hon. A. W. McLelan. Estimates of the sums required for the service of the Dominion, for the year ending 30th June, 1887; presented 1 24th March, 1886. Supplementary Estimates of Canada for the fiscal year ending 30th June, 1886; presented 26th May, 1886. Supplementary Estimates of Canada for the fiscal year ending 30th June, 1887; presented 28th May, 1886.....*Printed for both Distribution and Sessional Papers.*

CONTENTS OF VOLUME No. 3.

3. Annual Report of the Auditor-General on Appropriation Accounts, for the fiscal year ended 30th June, 1885. Presented to the House of Commons, 1st March, 1886, by Hon. A. W. McLelan.....*Printed for both Distribution and Sessional Papers.*

CONTENTS OF VOLUME No. 4.

4. Annual Report of the Department of Indian Affairs, for the year ended 31st December, 1885. Presented to the House of Commons, 3rd March, 1886, by Sir John A. Macdonald—

Printed for both Distribution and Sessional Papers.

5. Annual Report, Returns and Statistics of the Inland Revenues of the Dominion of Canada, for the fiscal year ended 30th June, 1885. Presented to the House of Commons, 1st March, 1886, by Hon. J. Costigan.....*Printed for both Distribution and Sessional Papers.*

- 5a. Canal Statistics for season of navigation, 1885, being Supplement No. 1 to the Inland Revenue Report, for the year ended 30th June, 1885. Presented to the House of Commons, 3rd May, 1886, by Hon. J. Costigan. Twelfth Report on Inspection of Weights, Measures and Gas, being Supplement No. 2 to the Report of the Department of Inland Revenue. Presented 2nd June, 1886.....*Printed for both Distribution and Sessional Papers.*

CONTENTS OF VOLUME No. 5.

- 6.** Annual Report of the Department of Militia and Defence of the Dominion of Canada, for the year ended 31st December, 1885. Presented to the House of Commons, 4th March, 1886, by Sir Adolphe Caron.....*Printed for both Distribution and Sessional Papers.*
- 6a.** Report upon the suppression of the rebellion in the North-West Territories, and matters in connection therewith, in 1885. Presented to the House of Commons, 20th May, 1886, by Sir Adolphe Caron.....*Printed for both Distribution and Sessional Papers.*

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- 7.** Annual Report of the Postmaster-General, for the year ended 30th June, 1885. Presented to the House of Commons, 5th March, 1886, by Sir Hector Langevin—
Printed for both Distribution and Sessional Papers.
- 8.** Annual Report of the Department of the Interior, for the year ended 31st December, 1885. Presented to the House of Commons, 8th March, 1886, by Hon. Thos. White—
Printed for both Distribution and Sessional Papers.
- 8a.** Annual Report of the Commissioner of the North-West Mounted Police Force, for the year 1885. Presented to the House of Commons, 24th March, 1886, by Sir Hector Langevin—
Printed for both Distribution and Sessional Papers.
- 8b.** Detailed Report upon all claims to land and right to participate in the North-West Half-breed grant by settlers along the South Saskatchewan and vicinity west of Range 26, West 2nd Meridian, being the settlements commonly known as St. Louis de Langevin, St. Laurent or Batoche and Duck Lake. Presented to the House of Commons, 15th April, 1886, by the Hon. Thos. White.....*Printed for both Distribution and Sessional Papers.*

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- 9.** Annual Report of the Secretary of State of Canada, for the year ended 31st December, 1885. Presented to the House of Commons, 12th March, 1886, by Hon. J. A. Chapleau—
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- 9a.** Synopsis of companies incorporated under the Canada Joint Stock Companies Act of 1869 and 1877, from 7th May, 1869, to 31st December, 1885. Presented to the House of Commons, 12th March, 1886, by Hon. J. A. Chapleau*Not printed.*
- 10.** Annual Report of the Minister of Agriculture for the Dominion of Canada, for the year ended 31st December, 1885. Presented to the House of Commons, 15th April, 1886, by Hon. J. Carling.....*Printed for both Distribution and Sessional Papers.*
- 10a.** Criminal Statistics for the year 1884.....*Printed for both Distribution and Sessional Papers.*

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- 10b.** Report on Canadian Archives, 1885. Presented to the House of Commons, 20th May, 1886, by Hon. J. Carling.....*Printed for both Distribution and Sessional Papers.*
- 10c.** Abstracts of the Returns of Mortuary Statistics for the year 1885—
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- 11.** Eighteenth Annual Report of the Department of Marine, for the fiscal year ended 30th June, 1885. Presented to the House of Commons, 1st March, 1886, by Hon. G. E. Foster—
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- 11a.** Report of the Chairman of the Board of Steamboat Inspection for the calendar year ended 31st December, 1885..... *Printed for both Distribution and Sessional Papers.*

- 11b.** Annual Report of the Department of Fisheries, Dominion of Canada, for the year 1885. Presented to the House of Commons, 27th May, 1886, by Hon. G. E. Foster—
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- 11c.** Report of the second Hudson Bay Exploration, under the command of Lieut. A. R. Gordon, R.N., 1885. Presented to the House of Commons, 10th May, 1886, by Hon. G. E. Foster—
Printed for Sessional Papers only.
- 11d.** Charts showing the mean, monthly and annual temperatures of Hudson Bay region and eastern Canada, September, 1884, to October, 1885, by Andrew R. Gordon. Presented to the House of Commons, 10th May, 1886, by Hon. G. E. Foster..... *Not printed.*

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- 12.** Annual Report of the Minister of Public Works of Canada, for the fiscal year ended 30th June, 1885, on the works under his control. Presented to the House of Commons, 26th February, 1886, by Sir Hector Langevin.....*Printed for both Distribution and Sessional Papers.*
- 13.** Annual Report of the Minister of Railways and Canals for the past fiscal year, from 1st July, 1884, to 30th June, 1885, on the works under his control. Presented to the House of Commons, 8th March, 1886, by Hon. J. H. Pope.....*Printed for both Distribution and Sessional Papers.*
- 13a.** Reports and Railway Statistics of Canada, and capital, traffic and working expenditure of the railways of the Dominion, 1884-85. Presented to the House of Commons, 7th May, 1886, by Sir Hector Langevin.....*Printed for both Distribution and Sessional Papers.*
- 14.** Abstract of Statements of Fire and Inland Marine Insurance Companies in Canada, for the year 1885. Presented to the House of Commons, 2nd April, 1886, by Hon. A. W. McLelan—
Printed for both Distribution and Sessional Papers.

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- 15.** Annual Report of the Ministers of Justice as to Penitentiaries in Canada, for the year ended 30th June, 1885. Presented to the House of Commons, 1st March, 1886, by Hon. J. S. D. Thompson.....*Printed for both Distribution and Sessional Papers.*
- 15a.** Correspondence, Reports of the Minister of Justice, and Orders in Council upon the subject of provincial legislation, 1867-84. Presented to the House of Commons, 1st April, 1886, by Hon. J. S. D. Thompson.....*Printed for Distribution only.*
- 16.** Report of the Joint Librarians of Parliament on the state of the Library of Parliament, Presented to the House of Commons, 25th February, 1886, by Hon. Mr. Speaker—
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- 17.** Shareholders in the Chartered Banks of the Dominion of Canada, as on the 31st December, 1885. Presented to the House of Commons, 17th March, 1886, by Hon. A. W. McLelan—
Printed for both Distribution and Sessional Papers.
- 18.** Accounts of the late Province of Canada and the Provinces of Ontario and Quebec with the Dominion of Canada, from 1st July, 1867, to 30th June, 1885. Presented to the House of Commons, 29th May, 1886, by Hon. A. W. McLelan—
Printed for both Distribution and Sessional Papers.
- 19.** Return to an Order of the House of Commons, dated 30th March, 1885, for a Return showing the date and hour of departure from Toronto and arrival at Brockville of all trains on the Grand Trunk Railway carrying Her Majesty's mails, from 1st February to the 30th April, in the years 1881, 1882, 1883, 1884, and in the present year up to the date of the Return; also the date and hour of departure from Brockville and Ottawa and of arrival at Ottawa and Brockville of all similar trains on that portion of the Canadian Pacific Railway between the two points last named during the same periods of time. Presented to the House of Commons, 1st March, 1886—*Mr. Cameron (Middlesex)*.....*Not printed.*

19a. Supplementary Return to an Order of the House of Commons, dated 24th February, 1885, for copies of the Returns as required to be made under the Consolidated Railway Act of 1879 and the Acts in amendment thereof of 1881 and 1884, by the Grand Trunk Railway Company, for the fiscal year 1883-84, in each case separately; and 1st. The number of miles of main line of Grand Trunk, with statement of actual total cost of construction and equipment thereof. The separate cost per mile of construction thereof, without rolling stock. The total amount of capital account now standing against the said railway, including its equipment. 2nd. A statement in detail showing the several branches or side lines now owned by the said company, including the number of miles in each, with the amounts severally paid for each. How such amounts were paid; whether paid in cash or securities, and the statement and character thereof in detail. The amount for which each of such securities was sold, and the net amounts which were realized in each. 3rd. A statement in detail of any railway line or lines leased by the Grand Trunk Company or agreed to be worked by them on a percentage of earnings or other terms, with the length of each of such lines and the conditions in detail of the agreements in relation thereto. 4th. A statement in detail of any interest the Grand Trunk Railway may have in any other railway or railways, with the securities in detail that they may hold in relation thereto. 5th. A statement in detail of the net earnings of each of the railways mentioned in the four preceding clauses after the payment of working expenses for the past financial year of each of the said railways, with a statement in detail of the percentage that working expenses bear in each case to the gross earnings. 6th. Whether any and what amounts were paid by the Grand Trunk Company towards the construction of the Toronto and Ottawa Railway; and the amount thereof, with the statement of the gross as well as the net earnings of the said railway for the past financial year of the said railway; and a statement of where these funds came from; also a statement as to where they appear in the accounts of the Grand Trunk Company's accounts or returns. Presented to the House of Commons, 1st March, 1886.—*Mr. Mitchell*.....*Not printed.*

19b. Return to an Order of the House of Commons, dated 24th February, 1885, for a list of the names, in detail, with the residence or business address of each of the several stockholders of the Grand Trunk Railway Company of Canada, on the first day of January, last. Presented to the House of Commons, 2nd March, 1886.—*Mr. Mitchell*.....*Not printed.*

20. Return to an Address of the House of Commons to His Excellency the Governor General, dated 3rd March, 1884, for a statement showing the respective amounts of Dominion, Provincial and Municipal money paid, or grants of land given, either by way of bonus or otherwise, paid towards the construction or equipment of railways (other than the Canadian Pacific Railway) since Confederation, with dates of such payments and names of the respective railways so aided. Presented to the House of Commons, 1st March, 1886.—*Mr. Mulock*.....*Not printed.*

20a. Return to an Order of the House of Commons, dated 1st March, 1886, for a Return showing all grants of land made to Mr. Valin, M.P., in the North-West Territories, with the date of the Letters Patent therefor, the quantity, location, price and payments; also all grants so made either to Mr. Valin alone, or to others jointly with him. Presented to the House of Commons, 16th March, 1886.—*Mr. Casgrain*.....*Not printed.*

CONTENTS OF VOLUME No. 12.

20b. Return to an Order of the House of Commons, dated 29th March, 1886, for a Return showing :
 1. The total number of acres of grazing land placed under lease up to 1st March, 1886. 2. The names of grazing land lessees who have cattle upon their leaseholds, the number of acres in each leasehold, the date of the lease, the location of the land covered by the same, the number of lease, the number of cattle reported on each leasehold, the date when the leasehold was first stocked with cattle, and the aggregate area covered by such leases. 3. The names of grazing lands lessees who have not placed cattle upon their leaseholds, the number of acres in each leasehold, the location of the land covered by the same, the number of the lease, and the aggregate area covered by such leases. 4. The total revenue derived from pasture land leases.—All Returns asked for to be brought down to 1st March, 1886. Presented to the House of Commons, 22nd April, 1886.—*Mr. Charlton*.....*Printed for Sessional Papers only.*

- 20c.** A certified copy of a Report of a Committee of the Honorable the Privy Council, approved by the Honorable the Deputy Governor in Council on the 19th day of May, 1885, respecting the North-West Coal and Navigation Company. Presented to the House of Commons, 28th April, 1886, by Hon. Thos. White..... *Not printed.*
- 20d.** A certified copy of a Report of a Committee of the Honorable the Privy Council, approved by His Excellency the Governor General in Council on the 29th March, 1886, respecting the Winnipeg and Hudson Bay Railway and Steamship Company. Presented to the House of Commons, 28th April, 1886, by Hon. Thos. White..... *Not printed.*
- 20e.** Return to an Address of the Senate to His Excellency the Governor General, dated 4th May, 1886, for a list giving the names of all persons occupying, under annual leases, Government properties situated in the Seignior of Sorel. Presented to the Senate, 19th May, 1886.—Hon. Mr. Guévremont..... *Not printed.*
- 20f.** Copies of Orders in Council, correspondence, etc., relating to grants of Dominion Lands to the following railway companies: Wood Mountain and Qu'Appelle Railway Company; North-West Central Railway Company; and Manitoba and North-Western Railway Company. Presented to the House of Commons, 27th May, 1886, by Hon. Thos. White..... *Not printed.*
- 21.** Return to an Order of the House of Commons, dated 7th May, 1883, for copies of all correspondence, reports, accounts and other papers relating to any claim made by D. B. Woodworth and others, for compensation for gravel, said to have been taken from claimants' land for use on the Pembina Branch of the Canadian Pacific Railway; together with a copy of the evidence respecting such claim taken before the Board of Dominion Arbitrators, showing the amount claimed and the award, if any, made by said Arbitrators, and what sums have been paid thereunder. Presented to the House of Commons, 1st March, 1886.—Mr. Casey..... *Not printed.*
- 22.** Statement of all superannuations and retiring allowances in the Civil Service during the year ended 31st December, 1885, giving the name and rank of each person superannuated, or retired; his salary, age, length of service, allowance granted him on retirement, cause of his superannuation, and whether the vacancy has been subsequently filled, and, if so, whether by promotion or by new appointment, and the salary of the new appointee, under the Act 46 Victoria, chapter 8, section 15. Presented to the House of Commons, 1st March, 1886, by Hon. A. W. McLelan..... *Printed for Sessional Papers only.*
- 22a.** Return to an Order of the House of Commons, dated 2nd April, 1884, for copies of all correspondence, papers and telegrams between the Government or any member thereof, and any person or persons, relating to the superannuation of James Hearn, late Preventive Officer at Arichat, N.S.; and also all correspondence and telegrams relating to the appointment of his successor and the continuance of the latter in office. Presented to the House of Commons, 9th March, 1886.—Mr. Kirk..... *Not printed.*
- 22b.** Return to an Order of the House of Commons, dated 4th March, 1886, for a Return showing: 1st. The name of each person on the superannuation list on the first of January, A.D. 1886. 2nd. The date at which each of such persons was superannuated. 3rd. The amount paid into the superannuation fund by each person now on the list. 4th. The total amount paid to each person now on the superannuation list up to the first of January, 1886. Presented to the House of Commons, 20th April, 1886.—Mr. McMullen..... *Not printed.*
- 23.** Statement of payments charged to Unforeseen Expenses under Orders in Council, from 1st July, 1885, to date; in accordance with the Act 48 Victoria, chapter 41. Presented to the House of Commons, 1st March, 1886, by Hon. A. W. McLelan—
Printed for Sessional Papers only.
- 24.** Statement of Governor General's Warrants issued since last Session of Parliament, on account of fiscal years 1885-86; issued under the authority of 41 Victoria, chapter 7, section, 32, subsection 2. Presented to the House of Commons, 1st March, 1886, by Hon. A. W. McLelan—
Not printed.
- 25.** Return to an Order of the House of Commons, dated 16th February, 1885, for a Return showing the expenses, in detail, with dates, incurred by the several members of the Govern—

- ment and any other person or persons in the service of the Government, sent to England or elsewhere, on behalf of the Government, from 28th January, 1884, to date. Presented to the House of Commons, 3rd March, 1886.—*Mr. Somerville (Brant)*.....*Not printed.*
- 26.** Return to an Address of the House of Commons to His Excellency the Governor General, dated 12th March, 1885, for copies of all correspondence between the Government of Prince Edward Island and the Government of the Dominion, since the last Session of Parliament, relating to the claim made by the former Government for moneys expended by them in the construction and maintenance of piers and wharves, from 1st July, 1873, to January, 1883; also of all reports made to the Minister of Public Works, or any of his officials, since last Session upon such claims, together with all Orders in Council made thereon. Presented to the House of Commons, 3rd March, 1886.—*Mr. Davies*.....*Printed for Distribution only.*
- 26a.** Return to an Order of the House of Commons, dated 5th March, 1886, for copies of all correspondence with the Department of Public Works, the Minister of Railways and Canals, and the Minister of Marine and Fisheries, relative to repairs of the public wharf at Port Hastings, Inverness, N.S. Presented to the House of Commons, 31st March, 1886.—*Mr. Cameron (Inverness)*.....*Not printed.*
- 27.** Return to an Order of the House of Commons, dated 27th April, 1885, for copies of correspondence and petitions on the subject of the cases of criminal libel against Saunders and Wood, tried in December, 1884, before a judicial functionary in the North-West Territories. Presented to the House of Commons, 3rd March, 1886.—*Mr. Blake*.....*Not printed.*
- 28.** Return (*in part*) to an Address of the House of Commons to His Excellency the Governor General, dated 9th March, 1885, for a copy of the short-hand notes of the argument before the Privy Council in the late dispute between Manitoba and the Province of Ontario, as to the westerly boundary of the Province of Ontario; also copy of the claim as presented by the Attorney-General of Ontario before the Privy Council; also a statement of the reasons given by the Attorney-General of Ontario for abandoning his claim to that part of the territory lying between the Lake of the Woods and the Rocky Mountains; also a copy of all correspondence between the Government of the Dominion and the Government of Ontario in reference to the arbitration and award, and also in reference to the decision of the Privy Council not already moved for or brought down. Presented to the House of Commons, 3rd March, 1886.—*Mr. Rykert*.....*Printed for Sessional Papers only.*
- 28a.** Return to an Address of the House of Commons to His Excellency the Governor General, dated 8th March, 1886, for copies of all correspondence between the Government of Canada and the Government of Ontario in reference to proposed Imperial legislation to confirm the decision of the Queen in Council upon the west and north-west boundaries of Ontario. Presented to the House of Commons, 1st April, 1886.—*Mr. Mills*—
Printed for Sessional Papers only.
- 29.** Draft of the Revised Statutes of Canada, laid before Parliament on the 3rd February, 1885, with which have been incorporated the Acts passed in the Session held in the 48th and 49th years of Her Majesty's reign. Presented to the House of Commons, 3rd March, 1886, by Hon. J. S. D. Thompson.....*Not printed.*
- 29a.** Return in conformity with the Act 31 Victoria, chapter 1, section 14, Distribution of the Statutes of Canada during the year 1885. Presented to the House of Commons, 8th March, 1886, by Hon. J. A. Chapleau.....*Not printed.*
- 30.** Return to an Order of the House of Commons, dated 1st March, 1886, for a Return showing the names of all persons who tendered for the contract for carrying the mail from Calgary to Fort McLeod, the amount of each tender, to whom the contract was let, together with all papers and correspondence relating to said contract. Presented to the House of Commons, 4th March, 1886.—*Mr. Landerkin*.....*Not printed.*
- 30a.** Return to an Order of the House of Commons, dated 3rd March, 1886, for a Return of the number of post offices established in the Muskoka, Parry Sound and Nipissing districts, with the cost and revenue of each office for each year respectively, since 1879. Presented to House of Commons, 22nd March, 1886.—*Mr. Cook*.....*Not printed.*

- 30b.** Return to an Order of the House of Commons, dated 5th March, 1886, for copies of all reports made by Inspector Sweetnam concerning alleged irregularities in connection with the management of Pickering post office, in the county of Ontario, and in particular of his report upon the investigation held by him at the village of Pickering in December, 1883; and copies of all correspondence between Inspector Sweetnam and the Post Office Department relating in any way to charges made against the management of said post office, and a copy of instructions to the inspector given upon such report. Presented to the House of Commons, 19th April, 1886.—*Mr. Edgar*.....*Not printed.*
- 31.** Return to an Order of the House of Commons, dated 1st March, 1886, for a Return of the receipt and expenditure, in detail, chargeable to the Consolidated Fund, from the 1st day of July, 1884, to the 1st day of March, 1885, and from the 1st day of July, 1885, to the 1st day of March, 1886. Presented to the House of Commons, 5th March, 1886.—*Sir Richard Cartwright.*
Printed for Distribution only.
- 32.** Return to an Address of the House of Commons to His Excellency the Governor General, dated 9th March, 1885, for copies of all papers, letters, correspondence and Minutes of Council relative to making Port Mulgrave, in the county of Guysboro', a sub-port of Port Hawkesbury, in the county of Inverness. Presented to the House of Commons, 5th March, 1886.—*Mr. Kirk.*
Not printed.
- 33.** Return to an Order of the House of Commons, dated 23rd April, 1883, for a Return of the number of children's carriages imported into Canada each and every year from the 1st July, 1878, to the 1st July, 1882, with the amount of duty collected in each year. Presented to the House of Commons, 5th March, 1886.—*Mr. McCraney*.....*Not printed.*
- 34.** Return to an Order of the House of Commons, dated 27th April, 1885, for copies of all papers, orders, letters, vouchers, correspondence or any other memoranda whatever in the possession or under the control of the Department of the Minister of Customs, or any of the members of the Government, or of any of the officials of the Government, relating to, or in any way connected with, the alleged violations of the Customs laws by swearing to false invoices, or in any other mode, by one John Leander McKenzie, of Canning, King's county, Nova Scotia, and of the firm of Sheffield & McKenzie, of the same place, with a copy of the decision of the Customs Department in such cases. Presented to the House of Commons, 5th March, 1886.—*Mr. Moffat*.....*Not printed.*
- 34a.** Supplementary Return to an Order of the House of Commons, dated 27th April, 1885, for copies of all papers, orders, letters, vouchers, correspondence or any other memoranda whatever in the possession or under the control of the Department of the Minister of Customs, or any of the members of the Government, or of any of the officials of the Government relating to, or in any way connected with, the alleged violations of the Customs laws by swearing to false invoices, or in any other mode, by one John Leander McKenzie, of Canning, King's county, Nova Scotia, and of the firm of Sheffield & McKenzie of the same place, with a copy of the decision of the Customs Department in such cases. Presented to the House of Commons, 27th April, 1886.—*Mr. Moffat*.....*Not printed.*
- 35.** Return (*in part*) under Resolution of the House of Commons, passed on the 20th February, 1882, on all subjects affecting the Canadian Pacific Railway, respecting details as to : 1. The selection of the route. 2. The progress of the work. 3. The selection or reservation of land. 4. The payment of moneys. 5. The laying out of branches. 6. The progress thereon. 7. The rates of tolls for passengers and freight. 8. The particulars required by the Consolidated Railway Act and amendments thereto, up to the end of the previous fiscal year. 9. Like particulars up to the latest practicable date before the presentation of the Return. 10. Copies of all Orders in Council and of all correspondence between the Government and the railway company, or any member or officer of either, relating to the affairs of the company. Presented to the House of Commons, 8th March, 1886, by Hon. A. W. McLelan—
Printed for Sessional Papers only.
- 35a.** Supplementary Return under Resolution of the House of Commons, passed on the 20th February, 1882, on all subjects affecting the Canadian Pacific Railway, respecting details as to : 1. The selection of the route. 2. The progress of the work. 3. The selection or reserva-

tion of land. 4. The payment of moneys. 5. The laying out of branches. 6. The progress thereon. 7. The rates of tolls for passengers and freight. 8. The particulars required by the Consolidated Railway Act and amendments thereto, up to the end of the previous fiscal year. 9. Like particulars up to the latest practicable date before the presentation of the Return. 10. Copies of all Orders in Council and of all correspondence between the Government and the railway company, or any member or officer of either, relating to the affairs of the company. Presented to the House of Commons, 11th March, 1886, by Hon. J. H. Pope—

Printed for Sessional Papers only.

- 35b.** Return of correspondence between the Canadian Pacific Railway Company and the Department of the Interior, as required by Resolution of the House of Commons of the 20th February, 1882. Presented to the House of Commons, 11th March, 1886, by Hon. Thos. White—

Printed for Sessional Papers only.

- 35c.** Articles of agreement entered into between Andrew Onderdonk and Her Majesty Queen Victoria, represented by the Minister of Railways and Canals of Canada, to erect and complete a combined passenger and freight building at North Bend; one at Chinaman's Rancho, and one at Pennie's, on the Canadian Pacific Railway, in British Columbia. Also between Wilson and McCrady and Her Majesty Queen Victoria, represented by the Minister of Railways and Canals of Canada, to erect a ten-stall engine house on the station ground of the Canadian Pacific Railway at North Bend, British Columbia. Also between Messrs. Head, Wrightson & Company and Her Majesty Queen Victoria, represented by the Minister of Railways and Canals of Canada, to supply iron piles, caps and points for the Canadian Pacific Railway Wharf at Port Moody, British Columbia. Presented to the House of Commons, 19th March, 1886, by Hon. J. H. Pope.....

Printed for Sessional Papers only.

- 35d.** Return to an Address of the House of Commons to His Excellency the Governor General, dated 5th March, 1886, for copies of all correspondence between the Government, or any member of the Government, with the Canadian Pacific Railway Company and the North Shore Railway Company, and between the two companies concerning the prolongation of the line of the Canadian Pacific Railway to the harbor of Quebec; of all contracts between the said two railway companies in reference to the same; of all Orders in Council passed in reference to the same; together with a statement of all moneys paid by the Government, and of the names of the persons to whom such payments were made, also in reference to the same, and in conformity with the Acts 47 Victoria, chapter 8, and 48-49 Victoria, chapter 58. Presented to the House of Commons, 15th April, 1886.—*Mr. Laurier*.....

Printed for Sessional Papers only.

- 35e.** Return to an Order of the House of Commons, dated 29th March, 1886, for copies of any agreements or contracts entered into between the Canadian Pacific Railway Company and the Northern Railway Company of Canada, and the Hamilton and North-Western Railway Company as lessees of the Northern and Pacific Junction line from Gravenhurst to Callander, providing for through rates and fares and proper traffic arrangements for freight and passengers over the line of the Canadian Pacific Railway, as stipulated in the agreement of 12th April, 1884, under which the Government granted the subsidy of \$12,000 per mile for the construction of the railway from Gravenhurst to Callander. Presented to the House of Commons, 15th April, 1886.—*Mr. Edgar*.....

Printed for Sessional Papers only.

- 35f.** Copies of letters from James A. Dickey, Office of Government Inspecting Engineer, summit of the Selkirks, enclosing extracts from diary, as to weather reports, snow-slides, etc. Presented to the House of Commons, 3rd May, 1886, by Hon. J. H. Pope—

Printed for both Distribution and Sessional Papers.

- 36.** Return under Act 48-49 Victoria, chapter 3, intitled: "An Act to provide for the taking of the Census in the Province of Manitoba, the North-West Territories and the District of Keewatin." Presented to the House of Commons, 9th March, 1886, by Hon. J. Carling—

Printed for Sessional Papers only.

- 36a.** Report of expenditure incurred on account of the Census of 1881, required by the "Census and Statistics Act, 1879." Also a report of all things done and expenditure made under the Act 48-49 Victoria, chapter 3, intitled: "An Act to provide for the taking of a Census in the Province of Manitoba, the North-West Territories and the District of Keewatin." Presented to the House of Commons, 15th March, 1886, by Hon. J. Carling.....

Not printed.

- 36b.** Return to an Address of the House of Commons to His Excellency the Governor General, dated 31st March, 1886, for a copy of the appointment of Angus McDonald, of Upper Washabuck, Victoria county, N.S., as census enumerator in 1881; also copies of all correspondence between the Government, or any member thereof, and any other person relative to the cancellation thereof. Presented to the House of Commons, 29th April, 1886.—*Mr. Kirk.....Not printed.*
- 37.** Return to an Order of the House of Commons, dated 30th March, 1885, for a Return showing the number of persons who, on the 30th June, 1884, had deposits in the Post Office Savings Bank of the following amounts:—Number having sums not exceeding \$100; number having sums between \$100 and \$300; number having sums between \$300 and \$500; number having sums between \$500 and \$1,000; and (if any) number having sums exceeding \$1,000, and the amount (if any) of the several sums exceeding \$1,000, and in each class giving the number of males and females depositing, also the Province in which the deposit was made, and the same information in all respects regarding depositors in the Government Savings Banks. Presented to the House of Commons, 9th March, 1886.—*Mr. Fairbank.....Not printed.*
- 37a.** Return to an Order of the House of Commons, dated 31st March, 1886, for a Return showing the amount held by the Government, through the several savings banks and Post Office Savings Banks throughout the Dominion, on the 30th June last, giving the location of each savings bank or Post Office Savings Bank, and the sum held by the Government through each separately. Presented to the House of Commons, 7th May, 1886.—*Mr. McMullen.....Not printed.*
- 38.** Return to an Order of the House of Commons, dated 27th April, 1885, for a statement showing: 1. The number of lots sold in the township of Viger, Témiscouata, belonging to the Indians, the amount of the sale and the name of the purchaser. 2. The payments made to the Department, to the agent, Mr. G. H. Deschêne, and to Mr. Antoine LeBel, showing in detail the date of such payments, when made and the amount of each payment. 3. A detailed statement of the amounts transmitted to the Department by Messrs. Deschêne and LeBel, out of all moneys received by them up to date, and the date of such transmission. 4. Copies of the report of Mr. Dingman, on the occasion of his visit to the Viger agency, in September, 1884. 5. Copies of correspondence with the Department in relation to the claims of Edouard Morin, and others, for lands purchased by them in the said Indian Reserve. Presented to the House of Commons, 9th March, 1886.—*Mr. De St. Georges.....Not printed.*
- 38a.** Return to an Order of the House of Commons, dated 4th March, 1886, for copies of minutes of the councils held by the Six Nation Indian chiefs during the month of December, 1885. Presented to the House of Commons, 22nd March, 1886.—*Mr. Paterson (Brant).....Not printed.*
- 38b.** Return to an Address of the House of Commons to His Excellency the Governor General, dated 4th March, 1886, for a Return showing the amounts of money paid to Chief Kah-ke-wa-quo-na-by (otherwise known as Chief Jones) editor of "The Indian Newspaper," during the past four years, with a statement of the services rendered for such payments, and all correspondence and Orders in Council in connection therewith. Presented to the House of Commons, 23rd March, 1886.—*Mr. Somerville (Brant).....Not printed.*
- 38c.** Return (*in part*) to an Address of the Senate to His Excellency the Governor General, dated 16th April, 1885, for copies of all correspondence between the Government of the United States and that of Canada, relative to the presence of American Indians on Canadian soil, all communications from officers of the Mounted Police upon that subject, and all Orders in Council or Departmental instructions relating thereto, which have not already been published in the Annual Report of the Indian Branch of the Department of the Interior. Also an estimate of the increase or decrease of the Indian population of the North-West, based upon the numbers who were paid at the various treaties made in 1871, and subsequent years, and the number now paid; such information regarding the number of Indians who have adopted agricultural pursuits not hitherto printed, and copies of complaints (if any) from the Aborigines Protection Society, the bishops and clergy of the various missionary bodies in the North-West, and from others, regarding the treatment of the Indians of the North-West. Also an approximate estimate of the cost of food supplies furnished to these Indians since Treaty No. 1, in 1871. Presented to the Senate, 23rd March, 1886.—*Hon. Mr. Schultz.....Not printed.*

- 38d.** Return to an Order of the House of Commons, dated 8th March, 1886, for reports made by persons not in the service of the Government to whom samples of flour for the Indians in the North-West were submitted for inspection during the years 1883, 1884, and 1885. Presented to the House of Commons, 12th April, 1886.—*Mr. Paterson (Brant)*.....*Not printed.*
- 38e.** Return to an Address of the House of Commons to His Excellency the Governor General, dated 31st March, 1886, for a copy of the Order in Council appointing certain persons as inspectors or commissioners of Indian Affairs in the North-West in the year 1878, together with the report, if any, of said inspectors or commissioners. Presented to the House of Commons, 14th April, 1886.—*Mr. Landerkin*.....*Not printed.*
- 38f.** Return to an Address of the House of Commons to His Excellency the Governor General, of the 4th March, 1886, for a Return showing copies of all reports, communications, letters, or other papers from any Government agent or other person, to any member of the Government or to any Department of the Government, since the first of April, 1882, referring to the insufficiency of the food, either as to quality or quantity, supplied by the Government to any Indians in the North-West Territories, or referring to the case of any North-West Indians who may have suffered or died from starvation. Presented to the House of Commons, 14th April, 1886.—*Mr. Mulock*.....*Not printed.*
- 38g.** Return to an Order of the House of Commons, dated 1st April, 1886, for copies of all correspondence between the Superintendent-General of Indian Affairs, or any official of the Indian Department, or the revising officer for West Elgin, and Mr. Beattie, Indian Agent for the Indian Reserve in the township of Orford, in regard to his duties or action in connection with the registration of Indian voters, or as to the qualification of any Indian. Presented to the House of Commons, 21st April, 1886.—*Mr. Casey*.....*Not printed.*
- 38h.** Return to an Order of the House of Commons, dated 31st March, 1886, for a Return showing :
1. A copy of all contracts with I. G. Baker & Co. for supplies agreed to be furnished by them to the Indians for the years 1884 and 1885. 2. A copy of all accounts for such supplies for said years by said I. G. Baker & Co. Presented to the House of Commons, 28th April, 1886.—*Mr. Cameron (Huron)*.....*Not printed.*
- 38i.** Return to an Order of the House of Commons, dated 8th March, 1886, for a Return of all statements and estimates made by the Department of Indian Affairs, of moneys due to Indians under the Robinson Treaty ; also of all correspondence and documents whatever in relation to the same subject. Presented to the House of Commons, 4th May, 1886.—*Mr. Dawson*—
Not printed.
- 39.** Return to an Order of the House of Commons, dated 8th April, 1885, for a statement of all sums entered in the Public Accounts of Canada as having been expended for railways, canals and navigation in British Columbia, the North-West Territories, Keewatin, Manitoba, Ontario, Quebec, New Brunswick, Prince Edward Island, Nova Scotia proper, and Cape Breton Island, up to the 1st January, 1885 ; also the superficies and population of each of the said divisions of Canada respectively. Presented to the House of Commons, 9th March, 1886.—*Mr. Vanasse*—
Printed for Sessional Papers only.
- 40.** Return to an Order of the House of Commons, dated 27th April, 1885, for a Return of all moneys received by the Government as export duty levied on oak, pine and spruce logs since Confederation, up to 1st January, 1885, showing the amounts received from each shipping point where such duties were levied, giving in detail the amounts collected each year, and giving the names of each person from whom duties have been collected, and also the amounts he or she has paid each year. Presented to the House of Commons, 9th March, 1886.—*Mr. Edgar*.....*Not printed.*
- 41.** Return to an Address of the House of Commons to His Excellency the Governor General, dated 12th March, 1885, for copies of all reports, Orders in Council and correspondence, not already ordered, on the subject of the effect of the decision of the Supreme Court as to the License Act of 1883, and of the steps to be taken to review the same, and of the steps to be taken under the Act meanwhile, with copies of all letters or telegrams to the commissioners or inspectors giving them instructions as to their conduct or action, or information as to the intentions or action of the Government. Presented to the House of Commons, 9th March, 1886.—*Mr. Blake*.....*Printed for Sessional Papers only.*

- 41a.** Return to an Address of the House of Commons to His Excellency the Governor General, dated 2nd March, 1885, for the number and title of all causes entered for argument upon the docket of the Supreme Court of New Brunswick *in banco*, the date of each entry thereof, the date of the argument of each cause, and the date when judgment was given in each cause, the Return to include all causes from 1st May, 1879, to 31st December, 1884, and to specify the causes in which questions arising under the provisions of the Canada Temperance Act of 1878 or the Liquor License Act of 1883 were involved, and the cities or counties in which said actions were brought or such questions were first raised. Presented to the House of Commons, 31st March, 1886.—*Mr. Foster*.....*Not printed.*
- 41b.** Return to an Address of the House of Commons to His Excellency the Governor General, dated 19th April, 1886, for a statement of the names of all cases in which judgment has been given by the Supreme Court of Canada, the reports of which have not yet been published, together with the respective dates on which such judgments were delivered. Presented to the House of Commons, 11th May, 1886.—*Mr. Barker*.....*Not printed.*
- 42.** Return to an Order of the House of Commons, dated 1st March, 1886, for a Return in the form used in the statements usually published in the *Gazette*, of the exports and imports from the 1st day of July, 1884, to the 1st day of February, 1885, and from the 1st day of July, 1885, to the 1st day of February, 1886, distinguishing the products of Canada and those of other countries. Presented to the House of Commons, 9th March, 1886.—*Sir Richard Cartwright*—*Not printed.*
- 43.** Return to an Address of the House of Commons to His Excellency the Governor General, dated 1st March, 1886, for a copy of the report of the medical men appointed by the Government to enquire into the mental condition of Louis Riel, after his conviction. Presented to the House of Commons, 9th March, 1886.—*Mr. Coursol*—*Printed for both Distribution and Sessional Papers.*
- 43a.** Memorandum of Sir Alexander Campbell in the case of Louis Riel, convicted of treason and executed therefor. Presented to the House of Commons, 11th March, 1886, by Hon. J. A. Chapleau.....*Printed for both Distribution and Sessional Papers.*
- 43b.** Return to an Address of the House of Commons to His Excellency the Governor General, dated 5th March, 1886, for copies of all commissions, letters, telegrams or instructions whatsoever, given, furnished or sent by the Government, by any minister or ministers, or any officer of the Department of Justice, to His Honor Mr. Justice Hugh Richardson, in relation to the trial of Louis Riel at Regina. Also copies of any instructions given to any person whomsoever on the staff of the court presided over by the said judge, and to the counsel representing the Government at the said trial. Presented to the House of Commons, 12th March, 1886.—*Mr. Amyot*.....*Printed for both Distribution and Sessional Papers.*
- 43c.** Return to an Address of the House of Commons to His Excellency the Governor General, dated 3rd March, 1886, for copies of all documents forming the record in the case of Her Majesty against Louis Riel, tried at Regina, including the jury list, the names of the jurors challenged and by whom they were challenged, the list of the jurors empanelled, the motions and affidavits filed, the evidence, the incidents of the trial, the addresses of counsel and of the prisoner, the charge of the judge, the names of the judges or assistant judges who tried the case, the names of the counsel for the prosecution and for the defence; and, in short, of every document whatsoever relating to the trial, and also of the verdict and of the recommendation to the mercy of the court. Presented to the House of Commons, 15th March, 1886.—*Mr. Amyot*.....*Printed for both Distribution and Sessional Papers.*
- 43d.** Return to an Address of the House of Commons to His Excellency the Governor General, dated 4th March, 1886, for: 1. A copy of the shorthand notes of the application to postpone the trial of Louis Riel for one month from the 21st July, 1885; the arguments of prisoner's counsel in favor of and the arguments of the Crown counsel against such postponement, and the observations and decisions or rulings of the judge thereon. 2. The shorthand notes of that portion of Charles Nolin's cross-examination wherein Riel's counsel endeavored to establish Riel's insanity; Riel's protests against that line of defence and his desire to dispense with

the services of his counsel; and the arguments of counsel and the observations and decisions or rulings of the judge thereon. Presented to the House of Commons, 15th March, 1886.—*Mr. Cameron (Huron)*.....*Printed for both Distribution and Sessional Papers.*

- 43c.** Petitions addressed to His Excellency the Governor General:—Of A. B. Dunnet, and others, of Regina, N.W.T., and of A. G. Hamilton, and others, of Moosomin, N.W.T., severally praying that the sentence passed upon Louis Riel be not disturbed in any way; that the law be permitted to take its course, and that Executive clemency be refused. A communication signed by James Boddy, district secretary, on behalf of the Loyal Orange Association of West Toronto, urging the carrying out of the sentence of death passed upon Louis Riel. Also a letter addressed to the Honorable the Privy Council, signed by Charles O'Hara, of Cranbourne, in the province of Quebec, laborer, setting forth the necessity of the carrying out of the sentence of death passed upon Louis Riel. Presented to the House of Commons, 18th March, 1886, by Hon. J. A. Chapleau.....*Printed for both Distribution and Sessional Papers.*
- 43f.** Return to an Address of the House of Commons to His Excellency the Governor General, dated 4th March, 1886, for copies of all petitions, communications and representations in favor of the commutation of the sentence of Louis Riel. Presented to the House of Commons, 23rd March, 1886.—*Mr. Laurier*.....*Printed for both Distribution and Sessional Papers.*
- 43g.** The Queen *versus* Louis Riel, accused and convicted of the crime of high treason. Report of the trial at Regina; Appeal to the Court of Queen's Bench, Manitoba; Appeal to the Privy Council, England; Petition for medical examination of the convict; List of petitions for commutation of sentence. Presented to the House of Commons, 11th March, 1886, by Hon. J. A. Chapleau.....*Printed for Distribution only.*
- 43h.** Return (*in part*) to an Order of the House of Commons, dated 4th March, 1886, for copies of all papers found in the council room of the insurgents, or elsewhere at Batoche, especially including: 1. The diary of Louis Riel. 2. The minute book and Orders in Council of the insurgent council. 3. The correspondence of Louis Riel. Presented to the House of Commons, 17th May, 1886.—*Mr. Laurier*.....*Printed for Sessional Papers only.*
- 43i.** Supplementary Return to an Order of the House of Commons, dated 4th March, 1886, for copies of all papers found in the council room of the insurgents, or elsewhere at Batoche, especially including: 1. The diary of Louis Riel. 2. The minute book and Orders in Council of the insurgent council. 3. The correspondence of Louis Riel. Presented to the House of Commons, 17th May, 1886.—*Mr. Laurier*.....*Printed for Sessional Papers only.*
- 44.** Report of the Commissioner, Dominion Police, in compliance with the Act 31 Victoria, chapter 73. Presented to the House of Commons, 11th March, 1886, by Hon. J. S. D. Thompson—
Not printed.
- 44a.** Return to an Order of the House of Commons, dated 19th April, 1886, for a Return showing the names and number of those who acted as police scouts during the North-West insurrection; also the names of those who have since applied for a land grant bounty for said services, the same as that given to the volunteers. Presented to the House of Commons, 11th May, 1886.—*Mr. Sproule*.....*Not printed.*
- 45.** Return to an Address of the House of Commons to His Excellency the Governor General, dated 5th March, 1886, for copies of all Orders in Council in relation to the Half-breed prisoners in the North-West, passed during the three months next preceding the 16th November, 1885. Presented to the House of Commons, 11th March, 1886.—*Mr. Desaulniers (Maskinongé)*—
Not printed.
- 45a.** Return to an Order of the House of Commons, dated 4th March, 1886, for a Return showing the number of Half-breeds of the North-West Territories who proved their claims before the Commission at Fort Qu'Appelle, Touchwood Hills, Qu'Appelle Valley, Regina, Maple Creek, Calgary, Fort McLeod, Pincher Creek, Edmonton, St. Albert, Fort Saskatchewan, Victoria, Fort Pitt, Battleford, Prince Albert, Batoche, Duck Lake, Forks of Saskatchewan, Fort à la Corne, Cumberland House, Moose Jaw and Willow Branch, in the North-West Territories; also at Grand Rapids, in Keewatin, and Winnipeg and Griswold, in Manitoba, giving in each

case the number of heads of families and minors; also the number of males and females; also copies of all the petitions filed in the Department of the Interior praying that grievances be redressed, with the names of such petitioners, distinguishing those who had their claims already settled in Manitoba and those who had not; also the number of Manitoba Half-breeds who proved their claims prior to the 20th of April last on the supplementary list, and those who have proved their claims since that date. Presented to the House of Commons, 24th March, 1886.—*Mr. Ross*.....*Printed for both Distribution and Sessional Papers.*

45b. Supplementary Return to an Order of the House of Commons, dated 7th March, 1883, for copies of all correspondence and memorials relating to the claims of the inhabitants of Prince Albert, and the neighboring districts in the North-West Territories, in respect of the lands they occupy, and to other matters affecting their condition. Presented to the House of Commons, 5th April, 1886.—*Mr. Blake*.....*Printed for both Distribution and Sessional Papers.*

45c. Return to an Address of the House of Commons to His Excellency the Governor General, dated 14th April, 1886, for copies of all the depositions or other evidence submitted in favor of Half-breeds or Metis sentenced to imprisonment in the gaol at Regina and in the Provincial Penitentiary of Manitoba; and also all depositions submitted on behalf of André Nault and Abraham Monteur, Metis prisoners confined at Regina and Battleford. Presented to the House of Commons, 17th May, 1886.—*Mr. Mills*.....*Printed for Sessional Papers only.*

46. Return to an Order of the House of Commons, dated 4th March, 1886, for a Return showing, in detail, sums borrowed by way of temporary loan by the Government, on 1st March, 1886, from banks or other parties, in Canada or elsewhere. Presented to the House of Commons, 11th March, 1886.—*Sir Richard Cartwright*.....*Not printed.*

47. Return to an Address of the House of Commons to His Excellency the Governor General, dated 9th March, 1885, for copies of all memorials and papers presented to the Government, or any member thereof, relating to the Canada Temperance Act by deputations, on Thursday, the 19th February last. Presented to the House of Commons, 11th March, 1886.—*Mr. Kranz*—*Not printed.*

47a. Return to an Order of the House of Commons, dated 4th March, 1886, for a Return showing the amount paid P. M. Barker, of Orangeville, returning officer under the Canada Temperance Act for the county of Dufferin, Ontario, for the vote taken under the provisions of said Act on the 30th day of October, 1884, giving a detailed statement of his account and the amount paid him, giving each item separately. Presented to the House of Commons, 15th March, 1886.—*Mr. McMullen*.....*Not printed.*

47b. Return to an Order of the House of Commons, dated 29th March, 1886, for a Return showing the amount paid to P. R. Jarvis, Esq., of the city of Stratford, county of Perth, returning officer under the Temperance Act for the county of Perth, Ontario, for the vote taken under the provisions of the Act on the 18th day of June, 1885; a detailed statement of all monies paid to such returning officer, for what purpose, and to whom paid by him. Presented to the House of Commons, 15th April, 1886.—*Mr. Trow*.....*Not printed.*

47c. Return to an Order of the House of Commons, dated 28th April, 1886, for a Return showing the number of establishments now in operation in Canada in which liquors of all kinds are manufactured; the number of hands employed; the amount of capital invested, and wages paid to employees during the year ending 31st December, 1885. Presented to the House of Commons, 6th May, 1886.—*Mr. Robertson (Shelburne)*.....*Not printed.*

47d. Return to an Order of the House of Commons, dated 28th April, 1886, for a statement showing the amount of liquor of all kinds manufactured in Canada during the year 1885; the amount of same exported, and the estimated value of same. Presented to the House of Commons, 6th May, 1886.—*Mr. Robertson (Shelburne)*.....*Not printed.*

47e. Return to an Order of the House of Commons, dated 28th April, 1886, for a statement showing the amount of liquor of all kinds imported into Canada during the year 1885, and duties collected for same. Presented to the House of Commons, 11th May, 1886.—*Mr. Robertson (Shelburne)*.....*Not printed.*

CONTENTS OF VOLUME No. 13.

- 48.** The Civil Service List of Canada, on the 1st July, 1885, under the 59th section of the Civil Service Act. Presented to the House of Commons, 3rd May, 1886, by Hon. J. A. Chapleau—
Printed for both Distribution and Sessional Papers.
- 48a.** A Return of the names and salaries of all persons appointed to or promoted in the Civil Service during the year ending 1885, specifying the office to which each has been appointed or promoted. (Section 58, sub-section 2, "Civil Service Act.") Presented to the House of Commons, 15th March, 1886, by Hon. J. A. Chapleau..... *Printed for Sessional Papers only.*
- 49.** Detailed statement of all bonds and securities registered in the Department of the Secretary of State of Canada, in conformity with the Act 31 Victoria, chapter 37, section 15. Presented to the House of Commons, 12th March, 1886, by Hon. J. A. Chapleau..... *Not printed.*
- 50.** Return of expenditure under appropriation of \$2,300,000 to defray expenses and losses arising out of the troubles in the North-West Territories, from 1st July, 1885, to 15th March, 1886; and subsidiary statement, "Hudson Bay Company's Supplies." Presented to the House of Commons, 30th March, 1886, by Hon. A. W. McLelan—
Printed for both Distribution and Sessional Papers.
- 50a.** Report of the Board of Examiners for the Civil Service in Canada, for the year ended 31st December, 1885. Presented to the House of Commons, 19th April, 1886, by Hon. J. A. Chapleau..... *Printed for both Distribution and Sessional Papers.*
- 51.** Return to an Order of the House of Commons, dated 27th April, 1885, for copies of all correspondence, reports, recommendations and representations received at, and sent from, the Department of Customs since the year A.D. 1880 to this day, on the subject of the Richibucto harbor, the Customs business done thereat, and in any way relating to the Customs service thereat, including all claims made for extra services by or on behalf of any preventive officer of the ports of Richibucto and Kingston. Presented to the House of Commons, 15th March, 1886.—*Mr. Landry (Kent)*..... *Not printed.*
- 51a.** Return to an Order of the House of Commons, dated 5th March, 1886, for copies of all correspondence with the Department of Public Works relative to protection required to the north of Smith's Island to prevent the total destruction of Port Hood harbor, Inverness, N.S.; also a copy of the engineer's report thereon. Presented to the House of Commons, 31st March, 1886.—*Mr. Cameron (Inverness)*..... *Not printed.*
- 51b.** Return to an Order of the House of Commons, dated 29th March, 1886, for copies of all correspondence between the Municipal Council of Bayfield or other persons and the Department of Public Works, in reference to the repairs to the harbor of Bayfield. Presented to the House of Commons, 6th April, 1886.—*Sir Richard Cartwright*..... *Not printed.*
- 52.** Return to an Address of the House of Commons to His Excellency the Governor General, dated 5th March, 1886, for copies of all documents forming the record in the cases of Her Majesty against the different parties tried in connection with the late rebellion, including the jury lists, the names of the jurors, the lists of the jurors empanelled, the motions and affidavits filed, the evidence, the incidents of the trial, the charges of the judge, the names of the judges who tried the different cases, the names of the counsel for the prosecution and for the defence, the pleas entered, the verdicts and the sentences, and, in short, of every document whatever relating to the said trials. Presented to the House of Commons, 15th March, 1886.—*Mr. Laurier*..... *Printed for both Distribution and Sessional Papers.*
- 52a & b.** A Supplementary Return and a final Supplementary Return to an Address of the House of Commons to His Excellency the Governor General, dated 5th March, 1886, for copies of all documents forming the record in the cases of Her Majesty against the different parties tried in connection with the late rebellion, including the jury lists, the names of the jurors, the lists of the jurors empanelled, the motions and affidavits filed, the evidence, the incidents of the trial, the charges of the judge, the names of the judges who tried the different cases, the names of

the counsel for the prosecution and for the defence, the pleas entered, the verdicts and the sentences, and, in short, of every document whatever relating to the said trials. Presented to the House of Commons, 19th March, 1886.—*Mr. Laurier—*

Printed for both Distribution and Sessional Papers.

- 52c. Message from His Excellency the Governor General, transmitting copies of certain letters of a confidential character respecting the rebellion in the North-West Territories during the year 1885. Presented to the House of Commons, 29th March, 1886, by Hon. Mr. Speaker—

Printed for both Distribution and Sessional Papers.

- 52d. Return to an Order of the House of Commons, dated 29th March, 1886, for a Return showing all sums of money paid to any member or members of this House or the Senate, on account of services rendered in connection with the North-West rebellion, giving the names, the services performed and the respective sums paid each, the date at which the services commenced and terminated; also all sums paid on account of travelling expenses, outfit or otherwise, giving each name, amount paid, what for, and date of payment, separately. Presented to the House of Commons, 11th May, 1886.—*Mr. McMullen.Not printed.*

- 52e. Return to an Address of the Senate to His Excellency the Governor General, dated 5th April, 1886, for a Return setting forth the total amount of the claims which have been already acknowledged by the Government for losses sustained by the Hudson Bay Company and private parties, arising out of the North-West rebellion, up to the 1st March, 1886, giving the names and amounts. Presented to the Senate, 20th May, 1886.—*Hon. Mr. Alexander—*

Not printed.

- 52f. Return to an Address of the Senate to His Excellency the Governor General, dated 7th April, 1886, for copies of the commission or commissions, and instructions issued to the commissioners appointed to enquire into and report upon the losses sustained in the North-West Territories during the recent rebellion. Presented to the Senate, 20th May, 1886.—*Hon. Mr. Power—*

Printed for Sessional Papers only.

53. The Governor General transmits to the House of Commons, copies of despatches and other papers with reference to the transfer of Cape Race lighthouse and steam fog-whistle from the Imperial Government to the Government of the Dominion of Canada. Presented to the House of Commons, 19th March, 1886, by Hon. G. E. Foster.....*Not printed.*

- 53a. Return to an Address of the House of Commons to His Excellency the Governor General, dated 19th April, 1886, for copies of all correspondence and telegrams between the Government of Canada, or any member thereof, and the late superintendent of Scatterie fog-whistle, and any other person or persons, and any Order or Orders in Council relative to the dismissal or resignation of the said superintendent and the appointment of his successor. Presented to the House of Commons, 2nd June, 1886.—*Mr. Kirk.....Not printed.*

54. Return to an Address of the House of Commons to His Excellency the Governor General, dated 4th March, 1886, for copies of instructions or circulars issued to revising officers in regard to the performance of their duties under the Electoral Franchise Act of 1885. Presented to the House of Commons, 22nd March, 1886.—*Mr. Casey.....Not printed.*

55. General statements and returns of baptisms, marriages and burials in the districts of Iberville, Montmagny and Quebec, for the year 1885. Presented to the House of Commons, 22nd March, 1886. General statements and returns of baptisms, marriages and burials in the districts of Arthabaska, Gaspé, Kamouraska, Saguenay and Terrebonne, for the year 1885. Presented to the House of Commons, 19th April, 1886, by Hon. Mr. Speaker. Returns for the district of St. Francis; presented 2nd June, 1886.....*Not printed.*

56. Statement of the affairs of the British Canadian Loan and Investment Company, on 31st December, 1885. Presented to the House of Commons, 22nd March, 1886, by Hon. Mr. Speaker.

Not printed.

57. Return to an Address of the House of Commons to His Excellency the Governor General, dated 28th March, 1884, for a statement showing the amount of bonuses that have been granted for railway purposes by the townships of Artemesia, Bentinck, Egremont, Glenelg, Normanby and the town of Durham; also for statement showing the amount expended by the Provincial Government in aid of railways within said townships. Presented to the House of Commons, 24th March, 1886.—*Mr. Thompson (Haldimand)*.....*Not printed.*
58. Return to an Order of the House of Commons, dated 8th March, 1886, for a Return of the expenditure made by the St. John Bridge and Railway Extension Company on their railway and bridge connecting the Intercolonial and New Brunswick Railway, together with a statement of the amounts advanced by the Government to the said company, and the dates of such advances. Presented to the House of Commons, 24th March, 1886.—*Mr. Weldon*.....*Not printed.*
59. Return to an Address of the House of Commons to His Excellency the Governor General, dated 1st March, 1886, for copies of all petitions or memorials received by the Government, since the 1st January, 1882, from riparian owners on the Richelieu river, complaining that the piers constructed in the said river near the towns of St. John and Iberville by the Stanstead, Shefford and Chambly Railway Company raise the waters of the said river, and that their lands are consequently flooded, and praying for relief. Presented to the House of Commons, 24th March, 1886.—*Mr. Béchard*.....*Not printed.*
60. Return to an Address of the House of Commons to His Excellency the Governor General, dated 30th March, 1885, for a copy of the report of the commissioners appointed to enquire into the claims of the merchants and fishermen of Prince Edward Island for a refund of duties paid by them in the years 1871 and 1872, on fish exported to the United States. Also all instructions furnished to said commissioner, and all correspondence between the commissioner and the Government, or any of the Departments, relating to the said refund, or the evidence or report of the said commissioner. Presented to the House of Commons, 24th March, 1886.—*Mr. Mills*.....*Not printed.*
61. Return to an Order of the House of Commons, dated 2nd February, 1885, for a Return showing: 1st. The total number of timber licenses or permits to cut timber granted since 1st February, 1883, and the total area covered by such licenses or permits. 2nd. The total amount of bonuses or premiums paid on such licenses or permits. 3rd. The name and residence of each grantee of a timber license or permit; the number of the license or permit; the area covered by each; the date of application for the same; the bonus or premium per square mile paid upon each; whether the survey of each berth or area covered by license or permit was made by the Government previous to granting the same, for the purpose of obtaining information as to its value; and the information, if any, in the possession of the Government as to the quantity, quality and kind of timber upon each; also the location of each berth or limit; also the names of all assignees of such licenses, and the consideration expressed in the assignment. 4th. The Crown dues or stampage charged or chargeable on each license or permit. 5th. Whether in each case where a license or permit was granted the berth was first put up at public auction after public notice inviting tenders was given, and was sold to the highest bidder, or whether granted upon application from the grantee without public competition being invited. 6th. Copies of all petitions, remonstrances, claims or communications sent or made to the Government respecting such timber licenses or permits; and copies of all correspondence had with the Government respecting such lands, licenses or timber, and the action of the Government thereon. Presented to the House of Commons, 24th March, 1886.—*Mr. Charlton*.....*Not printed.*
- 61a. Return to an Order of the House of Commons, dated 27th April, 1885, for copies of correspondence between the Indians of the Fort William Reserve, or anyone on their behalf, and the Indian Department, and between the Indian Department and Indian agent, whether by telegraph or otherwise, on the subject of the action taken under the existing timber licenses. Presented to the House of Commons, 1st April, 1886.—*Mr. Blake*.....*Not printed.*
- 61b. Return to an Order of the House of Commons, dated 10th May, 1886, showing the names of the persons who respectively owe the arrears of \$43,860.95, on account of cullers' fees, which appear to be according to the Report of the Department of the Interior for the year 1885, at page 23. Presented to the House of Commons, 10th May, 1886.—*Mr. Casgrain*.....*Not printed.*

- 61c. Return to an Address of the Senate to His Excellency the Governor General, dated 16th July, 1885, for copies of all memorials, letters or telegrams, addressed to the Department of the Interior or any member of the Privy Council, respecting the land and timber regulations affecting Dominion Lands in British Columbia. Presented to the Senate, 20th May, 1886.—*Hon. Mr. McInnes* *Not printed.*
62. Reports of the Chief Engineer and General Manager, Government Railways; the Dominion Government Agent in British Columbia; and the Engineer who personally surveyed the Esquimalt and Nanaimo Railway. Presented to the House of Commons, 2nd April, 1886 by *Hon. J. H. Pope*..... *Printed for Sessional Papers only.*
- 62a. Copies of telegraphic communications respecting the Esquimalt and Nanaimo Railway. Presented to the House of Commons, 5th April, 1886, by *Hon. J. H. Pope*—
Printed for Sessional Papers only.
63. Return to an Order of the House of Commons, dated 29th March, 1886, for a copy of the report made F. N. Gisborne in February, 1885, on the application of the inhabitants of Bryer and Long Islands, Digby county, for telegraphic communication with the mainland. Presented to the House of Commons, 5th April, 1886.—*Mr. Vail*..... *Not printed.*
64. Return to an Order of the House of Commons, dated 29th March, 1886, for a statement, in detail, of the several assets forming the sum of \$72,791,837, stated by the Minister of Finance to be available in reduction of the gross debt of the Dominion. Presented to the House of Commons, 5th April, 1886.—*Mr. Charlton*..... *Printed for both Distribution and Sessional Papers.*
65. Return to an Address of the House of Commons to His Excellency the Governor General, dated 27th April, 1885, for copies of all memorials or papers relating to reciprocal trade between the United States and Canada, and of all correspondence between the Government of Canada and the British Government, the British Minister at Washington, or the Government of the United States, upon the subject of reciprocal trade relations with the United States; also copies of all reports, if any, made by agents of the Canadian Government upon the same subject. Presented to the House of Commons, 5th April, 1886.—*Mr. Charlton*—
Not printed.
66. Return to an Order of the House of Commons, dated 4th March, 1886, for a Return of the rolling stock repaired at the Government workshops at Moncton for the Intercolonial Railway during the year ending 31st December, 1885; also of the rolling stock of the said railway repaired at other workshops during the same period, the places where such repairs were made, and the amounts paid. Presented to the House of Commons, 5th April, 1886.—*Mr. Weldon*—
Not printed.
- 66a. Return to an Order of the House of Commons, dated 4th March, 1886, for a Return of the number of private or official cars built or purchased for the Intercolonial Railway since the year 1878, and the cost of each car. Presented to the House of Commons, 12th April, 1886.—*Mr. Weldon* *Not printed.*
- 66b. Return to an Order of the House of Commons, dated 4th March, 1886, for a Return showing the quantity of rolling stock purchased for the Intercolonial Railway during the last six months of the year ending 31st December, 1885, giving each kind of rolling stock, and whether purchased under contract or otherwise, the parties from whom bought and the cost of each kind. Also a statement showing what has been built in Government workshops of each kind. Presented to the House of Commons, 14th April, 1886. — *Mr. Weldon* *Not printed.*
- 66c. Return to an Order of the House of Commons, dated 4th March, 1886, for a Return showing the cost and monies expended upon the railway station building in St. John, N.B., and of the furniture and fittings therein, the amount of the several contracts, names of contractors, and the place of manufacture of such furniture and fittings. Presented to the House of Commons, 15th April, 1886.—*Mr. Weldon*..... *Not printed.*

- 66d.** Return to an Order of the House of Commons, dated 27th April, 1885, for copies of a report made by Mr. Joseph Simard, Dominion Arbitrator, under date of 16th October, 1883, recommending that a sum of money should be paid to George Lavoie, of the parish of Ste. Cécile du Bic, for damages caused to his property by the Intercolonial Railway, or fixing the amount of such damages. Presented to the House of Commons, 3rd May, 1886.—*Mr. Langelier*—
Not printed.
- 66e.** Return to an Order of the House of Commons, dated 14th April, 1886, for copies of all documents addressed to the Honorable the Minister of Railways, praying, on the part of Jean Baptiste Plante, of St. Charles, that his claim for two horses killed on the Intercolonial Railway may be referred anew to the Dominion Arbitrators. Presented to the House of Commons, 6th May, 1886.—*Mr. Amyot*.....*Not printed.*
- 66f.** Return to an Order of the House of Commons, dated 28th April, 1886, for copies of the award or report of the Dominion Arbitrators, with the evidence and papers connected therewith, in the matter of claims in connection with section 16 of the Intercolonial Railway, on the part of the estate of the late John Bannon, Esq.; the late William Muirhead, Esq.; William Wilkinson, Esq., and the other claims investigated at the same time as those named above, and connected with the said report or award. Presented to the House of Commons, 31st May, 1886.—*Mr. Mitchell*.....*Printed for Sessional Papers only.*
- 66g.** Return to an Order of the House of Commons, dated 4th March, 1886, for a Return showing the quantity of stores purchased and taken into stock for the Intercolonial Railway during the last six months of the year ending 31st December, 1885, specifying what stores and of what kind purchased under contract, and the names of the several contractors, and the several amounts paid under such contracts. Presented to the House of Commons, 31st May, 1886.—*Mr. Weldon*.....*Not printed.*
- 66h.** Return to an Order of the House of Commons, dated 29th March, 1886, for a Return of the earnings and working expenses of the Intercolonial Railway for each month from 1st July, 1885, to 1st February, 1886, specifying the different sources of earnings and the amount (if any, in each month, credited from mechanical stores account to earnings. Presented to the House of Commons, 31st May, 1886.—*Mr. Weldon*.....*Printed for Sessional Papers only.*
- 66i.** Return to an Order of the House of Commons, dated 4th March, 1886, for a Return showing the number of men employed on the Intercolonial Railway between Campbellton and Halifax and between St. John and Shediac, including the men employed at the different stations, specifying the number at each station and the men employed on the machine shops at Moncton; the number and names of men dismissed or discharged from the employment of the railway since 1st October last, and the several causes of such dismissal or discharges; also any reduction of wages payable to the employees or any of them since the first day of October last. Presented to the House of Commons, 31st May, 1886.—*Mr. Weldon*.....*Not printed.*
- 67.** Return to an Address of the House of Commons to His Excellency the Governor General, dated 8th March, 1886, for copies of all Orders in Council passed for the granting of the subsidy authorized by the Acts 47 Victoria, chapter 8, and 48-49 Victoria, chapter 58, "for a line of railway connecting Montreal with the harbors of St. John and Halifax by the shortest and best practicable route;" of all reports of engineers upon which said Orders in Council may be based, together with a statement of all monies paid in connection with the same, and of all persons to whom such payments may have been made. Presented to the House of Commons, 5th April, 1886.—*Mr. Laurier*.....*Not printed.*
- 67a.** Return to an Address of the House of Commons to His Excellency the Governor General, dated 1st April, 1886, for copies of all correspondence between the Government of the Dominion of Canada and the Government of Nova Scotia, in reference to the Short Line Railway in Nova Scotia, and legislation affecting the same. Presented to the House of Commons, 28th April, 1886.—*Mr. Tupper*.....*Not printed.*
- 67b.** Report of the Chief Engineer of Government Railways, submitting the reports of Messrs. Donken and Hyndman on Cape Breton surveys, 1886. Presented to the House of Commons, 19th May, 1886, by Hon. J. S. D. Thompson—

68. Copy of an agreement between the Chignecto Marine Transport Railway Company (Limited) and Her Majesty Queen Victoria, represented by the Minister of Railways and Canals of Canada, dated 4th March, 1886. Presented to the House of Commons, 5th April, 1886, by Hon. J. H. Pope..... *Not printed.*
69. Return to an Address of the Senate to His Excellency the Governor General, dated 15th April, 1885, for a copy of all correspondence between the Department of Justice and any member of Parliament or others in relation to the investigation which took place last summer in regard to the administration of the penitentiary of St. Vincent de Paul, and the difficulties in the administration of the said institution. Presented to the Senate, 30th March, 1886.—*Hon. M. Bellerose*..... *Not printed.*
- 69a. Return to an Address of the Senate to His Excellency the Governor General, dated 1st March, 1886, for a copy of a protest of the deputy warden of St. Vincent de Paul Penitentiary (Téléphore Ouimet), objecting to the evidence of Hector Demers, summoned as a witness on the 14th July, 1884, being taken before the commission of enquiry named to enquire into the management of the aforesaid penitentiary in 1884. Presented to the Senate, 30th March, 1886.—*Hon. Mr. Bellerose*..... *Not printed.*
- 69b. Return to an Order of the House of Commons, dated 3rd March, 1886, for a Return showing the number of convicts in the Dominion penitentiaries for the years 1884-85, who were employed at work that competes with free labor; the kind of work employed at; the number employed at each kind of work; the number employed outside by contractors; and the amount received per day by the Government for each convict so employed; and where the goods so manufactured were disposed of. Presented to the House of Commons, 22nd April, 1886.—*Mr. Wilson*..... *Not printed.*
70. Message from His Excellency the Governor General, transmitting copies of the several despatches from the Imperial Government in reference to the engineers' certificates of competency in the British mercantile marine. Presented to the House of Commons, 9th April, 1886, by Sir Hector Langevin..... *Not printed.*
71. Return to an Order of the House of Commons, dated 31st March, 1886, for a Return showing the amount of notes of the several banks of the Dominion in circulation on the 1st March last; the amount of Dominion notes in circulation and in the hands of the banks on the same date; and the amount of gold held by the Government and the banks for the redemption of Dominion and bank notes at the same date. Presented to the House of Commons, 14th April, 1886.—*Mr. McMullen*..... *Not printed.*
72. Return to an Order of the House of Commons, dated 27th April, 1885, for copies of all correspondence, minutes of evidence taken, reports, memoranda or telegrams whatsoever, relating to or causing the dismissal of one Brenton H. Dodge, of Kentville, King's county, Nova Scotia, from the office of collector of the port of Kentville, Nova Scotia. Presented to the House of Commons, 15th April, 1886.—*Mr. Moffat*..... *Not printed.*
73. Return to an Order of the House of Commons, dated 29th March, 1886, for a Return showing seizures made at the port of Winnipeg, or any of its outports, by the Customs officers or officials, between 1st January, 1885, and the 11th March, 1886, in which fines were imposed, deposits forfeited, or goods sold after seizure; giving the names of the persons upon whom fines were imposed, who forfeited deposits, or whose goods were sold after seizure; giving the amount of each fine imposed, of each forfeit deposited, and of the amount obtained in each case in which goods were sold; and stating in detail the name, official position and salary of each officer to whom any part of the money so realized was paid, and the amount in each case thus paid to the said officer. Presented to the House of Commons, 15th April, 1886.—*Mr. Paterson (Brant)*..... *Not printed.*
74. Return to an Address of the House of Commons to His Excellency the Governor General, dated 29th March, 1886, for copies of all the evidence, together with the judge's charge, and all other papers relating to the trial of Loison Mongrain for the murder of David L. Cowan, a

- policeman, late of the county of Carleton. Also all petitions, correspondence and Orders in Council relating to the commutation of the death sentence of Loison Mongrain. Presented to the House of Commons, 19th April, 1886.—*Mr. Trow*.....*Not printed.*
75. Message from His Excellency the Governor General, transmitting copies of certain despatches from the Right Honorable the Secretary of State for the Colonies, and of other papers, with reference to the Aspy Bay affair. Presented to the House of Commons, 20th April, 1886, by Sir Hector Langevin.....*Printed for Sessional Papers only.*
76. Return to an Address of the House of Commons to His Excellency the Governor General, dated 19th April, 1886, for copies of all despatches from or correspondence with the Imperial Government, respecting the complaint of the Legislature or Government of Prince Edward Island that the terms of Union between that Island and the Dominion have not been carried out, or with respect to the mission of delegates to the Imperial Government from Prince Edward Island on the subject of such complaint. Presented to the House of Commons, 19th April, 1886.—*Mr. McIntyre*.....*Printed for both Distribution and Sessional Papers.*
- 76a. Supplementary Return to an Address of the House of Commons to His Excellency the Governor General, dated 19th April, 1886, for copies of all despatches from or correspondence with the Imperial Government, respecting the complaint of the Legislature or Government of Prince Edward Island that the terms of Union between that Island and the Dominion have not been carried out, or with respect to the mission of delegates to the Imperial Government from Prince Edward Island on the subject of such complaint. Presented to the House of Commons, 30th April, 1886.—*Mr. McIntyre*.....*Printed for both Distribution and Sessional Papers.*
77. Return to an Order of the House of Commons, dated 29th March, 1886, for a Return of names, tonnage, number of men and armament of steamers or sailing vessels forming the present Marine Police Force of Canada, the extension of which is referred to in the Speech from the Throne. Presented to the House of Commons, 22nd April, 1886.—*M. Mitchell*.....*Not printed.*
- 77a. Return to an Order of the House of Commons, dated 29th March, 1886, for a Return of the numbers and names of United States fishing vessels frequenting the inshores of Canada for fishing and kindred purposes, during each of the several years that the Treaty of Washington has been in operation; also the kinds and estimated quantities of fish taken yearly by each American vessel, and the probable period of each fishing voyage or voyages. Presented to the House of Commons, 22nd April, 1886.—*Mr. Mitchell*.....*Not printed.*
- 77b. Return to an Address of the House of Commons to His Excellency the Governor General, dated 29th March, 1886, for a copy of the Report of the Minister of Marine and Fisheries to the Privy Council under date of 15th December, 1869. Presented to the House of Commons, 22nd April, 1886.—*Mr. Mitchell*.....*Printed for Sessional Papers only.*
- 77c. Return to an Address of the House of Commons to His Excellency the Governor General, dated 1st April, 1886, for copies of all fishery regulations or official notices, and of instructions to fishery officers or other persons commanding the alleged Marine Police Force of Canada, under the Fishery Act of 1868, relative to fishing practices by United States citizens exercising privileges conceded by the Treaty of Washington in common with Canadian fishermen, the said copies to be accompanied by a description of the various instances and of the manner and effect of enforcing the said regulations or notices. Presented to the House of Commons, 28th April, 1886.—*Mr. Mitchell*.....*Not printed.*
- 77d. Return to an Address of the House of Commons to His Excellency the Governor General, dated 5th April, 1886, for copies of all correspondence between the Government of British Columbia, or any person, and the Dominion Government, with regard to the deep-water fisheries on the coast of British Columbia. Presented to the House of Commons, 29th April 1886.—*Mr. Shakespeare*.....*Printed for Sessional Papers only.*
- 77e. Return to an Order of the House of Commons, dated 19th April, 1886, for a Return giving the number of whitefish fry at the various fish hatcheries of the Dominion for distribution next

spring; also the number of pickerel and black bass; also the instructions that have been given for their distribution. Presented to the House of Commons, 11th May, 1886.—*Mr. Gordon—*

Not printed.

77f. Return to an Order of the House of Commons, dated 14th April, 1886, for copies of all claims for fishing bounties by Louis Pinault and Michel Pinault, of Ste. Cécile, Bic, fishermen; of all affidavits or declarations in support of the said claims; of all correspondence in relation to such claims between the Department of Fisheries or any other Department of the Government and the said Louis Pinault and Michel Pinault or other persons; also of all reports of fishery overseers in relation to the said claims. Presented to the House of Commons, 14th May, 1886.—*Mr. Langelier.....*

Not printed.

78. Return to an Order of the House of Commons, dated 2nd March, 1885, for a Return of the names of the president, vice-president, directors (or provisional directors, as the case may be) and shareholders of the various railway companies for whose lines subsidies have been granted by the Parliament of Canada, and the amount of the stock held by each individual. Presented to the House of Commons, 28th April, 1886.—*Mr. Lister.....*

Not printed.

78a. Papers, correspondence, etc., respecting subsidies to certain railway companies, and towards the construction of certain railways, as follows: Moncton and Buctouche Railway Company; line of railway, Ingersoll to Chatham, Ontario; Northern and Western Railway Company; the Caraqueet Railway Company; Lake Erie, Essex and Detroit Railway Company; Thunder Bay Colonization Railway Company; Parry Sound Colonization Railway Company; railway from New Glasgow to Montcalm, Quebec; railway from Hereford to Eaton, Quebec; railway from St. Félix to Lake St. Gabriel, Quebec; railway from Glenannan to Wingham, Ontario; railway from McCann Station to Joggins, Nova Scotia; railway from L'Assomption to L'Épiphanie, Quebec; Montreal and Western Railway Company; railway from St. Andrews to Lachute, Quebec; Canada Atlantic Railway Company; railway from Truro to Newport, Nova Scotia; Quebec and Lake St. John Railway Company; Cap Rouge and St. Lawrence Railway Company; Long Sault to Lake Témiscamingue; Gananoque to Delta; line of railway along Stewiacke Valley; Perth Station to Plaister Rock Island, New Brunswick; Fredericton to Prince William, New Brunswick; Newcastle to Douglastown, New Brunswick; point on Canadian Pacific Railway to Eganville, Ontario; Napanee, Tamworth and Quebec Railway Company; and Albert Railway Company. Presented to the House of Commons, 27th May, 1886, by Sir Hector Langevin.....

Not printed

78b. Return to an Address of the House of Commons to His Excellency the Governor General, dated 1st April, 1886, for copies of all petitions from the Legislature of Nova Scotia or any member thereof, and the Dominion Government or any member thereof; and all Orders in Council of either Government, respecting the re-adjustment or increase of the money subsidy paid, or to be paid, by the Dominion Government to the Government of Nova Scotia, not already brought down. Presented to the House of Commons, 31st May, 1886.—*Mr. Kirk—*

Printed for Sessional Papers only.

79. Return to an Address of the House of Commons to His Excellency the Governor General, dated 14th April, 1886, for a copy of the memorial of the North-West Council presented to the Government by Messrs. Wilson and Ross, members of said Council, and of any answer made to said memorial and of any correspondence between the Government and the Lieutenant-Governor of the North-West Territories or other parties in reference thereto. Presented to the House of Commons, 29th April, 1886.—*Mr. Watson—*

Printed for both Distribution and Sessional Papers.

80. Return to an Order of the House of Commons, dated 31st March, 1886, for Return of names, rank and corps of the officers composing the Military Claims Commission, while at Winnipeg; stating also any subsequent changes in the personnel of the commission, with reasons for the same. Presented to the House of Commons, 3rd May, 1886.—*Mr. Trow*

Not printed.

80a. Return to an Order of the House of Commons, dated 7th April, 1886, for copies of all correspondence between the Minister of Militia and Defence and any official of the Militia Depart-

ment, and any officers of volunteer corps, whether on active service or not, all officials of rifle associations, and other parties, in reference to the character of the ammunition made at the Quebec Cartridge Factory and supplied for use in the field, for practice, or at rifle matches; including reports of all tests of such ammunition made by any such officers or officials of rifle associations. Presented to the House of Commons, 3rd May, 1886.—*Mr. Casey.....Not printed.*

80b. Return to an Order of the House of Commons, dated 31st March, 1886, for a Return of names of the staff paymasters appointed, showing whether non-combatants or not, with rank and corps of such as were in the active militia; with rate of pay and length of services in all cases. Presented to the House of Commons, 7th May, 1886.—*Mr. Trow.....Not printed.*

80c. Supplementary Return to an Order of the House of Commons, dated 7th April, 1886, for copies of all correspondence between the Minister of Militia and Defence and any official of the Militia Department, and any officers of volunteer corps, whether on active service or not, all officials of rifle associations, and other parties, in reference to the character of the ammunition made at the Quebec Cartridge Factory and supplied for use in the field, for practice, or at rifle matches; including reports of all tests of such ammunition made by any such officers or officials of rifle associations. Presented to the House of Commons, 11th May, 1886.—*Mr. Casey.....Not printed.*

80d. Statement of militia pensions, awarded by Order in Council, consequent upon the rebellion of 1885, North-West Territories. Presented to the House of Commons, 13th May, 1886, by Sir Adolphe Caron.....*Printed for Sessional Papers only.*

80e. Copy of a Report of the Honorable the Privy Council, approved by His Excellency the Governor General in Council on the 8th July, 1885, respecting regulations as to pensions and gratuities, rebellion, North-West Territories. Presented to the House of Commons, 13th May, 1886, by Sir Adolphe Caron.....*Printed for Sessional Papers only.*

80f. Return to an Order of the House of Commons, dated 31st March, 1886, for copies of instructions to Major Bell, Major-General Laurie, S. L. Bedson, and other non-combatants, employed during the North-West campaign, from the Minister of Militia, Major-General Middleton, or the Adjutant-General of Militia, and of correspondence between the last-named authorities and such non-combatants. Presented to the House of Commons, 13th May, 1886.—*Mr. Trow—
Printed for Sessional Papers only.*

80g. Return to an Order of the House of Commons, dated 31st March, 1886, for a Return showing names of all militia officers and non-combatants appointed as transport and supply officers, giving rank and corps of militia officers, with dates of appointment, rates of pay, by whom appointed, and on whose recommendation, and total payments to each to date. Presented to the House of Commons, 14th May, 1886.—*Mr. Trow.....Printed for Sessional Papers only.*

80h. Return to an Order of the House of Commons, dated 31st March, 1886, for a Return of all horses, ponies, cattle, furs, waggons, carts and other property seized by the Mounted Police or Expeditionary Force, while on service in the North-West between 27th March and 1st August, with the disposition made of the same, the names of persons from whom such seizures were made, and the amounts (if any) paid, received, or now payable or receivable, on account of such property. Presented to the House of Commons, 14th May, 1886.—*Mr. Trow—
Printed for Sessional Papers only.*

80i. Return to an Order of the House of Commons, dated 31st March, 1886, for a Return stating name, rank and corps of all officers composing the staff of Major-General Middleton, and the capacity in which each served. Presented to the House of Commons, 14th May, 1886.—*Mr. Trow.....Printed for Sessional Papers only.*

80j. Return to an Order of the House of Commons, dated 31st March, 1886, for copies of all correspondence between one James Anderson and the Minister of Militia, Major-General Middleton, and any member of the Government, with respect to the purchasing of supplies, cost of transport and other expenditure incurred during the North-West Rebellion. Presented to the House of Commons, 14th May, 1886.—*Mr. Trow.....Printed for Sessional Papers only.*

- 80k.** Return to an Order of the House of Commons, dated 31st March, 1886, for a Return of names of all persons employed as purchasing agents, showing when, by whom, and on whose recommendation appointed, rate of pay, and length of employment. Presented to the House of Commons, 14th May, 1886.—*Mr. Trow*.....*Printed for Sessional Papers only.*
- 80l.** Return to an Order of the House of Commons, dated 31st March, 1886, for a Return showing names of all contractors from whom teams were engaged for transport, number of teams engaged from each, with rate of pay per day per team, and the total amount paid to each of such contractors. Presented to the House of Commons, 25th May, 1886.—*Mr. Trow*—
Printed for Sessional Papers only.
- 80m.** Return to an Address of the House of Commons to His Excellency the Governor General, dated 31st March, 1886, for copies of all correspondence between the Government of the United Kingdom and the Canadian Government, or any members, officers or employees thereof, respecting the medals to be given to the volunteers who served in the recent insurrection in the North-West. Presented to the House of Commons, 25th May, 1886.—*Mr. Amyot*—
Printed for Sessional Papers only.
- 81.** Return to an Address of the House of Commons to His Excellency the Governor General, dated 19th April, 1886, for copies of all petitions, despatches and correspondence, reports to Council and Orders in Council touching upon and relating to the disallowance of railway charters in Manitoba, not already brought down. Presented to the House of Commons, 3rd May, 1886.—*Mr. Watson*.....*Printed for Sessional Papers only.*
- 82.** Return to an Address of the House of Commons to His Excellency the Governor General, dated 19th April, 1886, for a copy of the report of Mr. Justice Hensley upon the trial of Alexander Gillis, for murder, at Charlottetown, in January last, together with a copy of the report of the Minister of Justice recommending a commutation of the sentence of death passed upon Gillis, and all telegrams and letters upon the subject. Presented to the House of Commons, 3rd May, 1886.—*Mr. Davies*.....*Not printed.*
- 83.** Return to an Order of the House of Commons, dated 5th March, 1886, for copies of all correspondence relative to the dismissal of Isaac McLeod, Esq., Strathbone, Inverness, from the position of postmaster at that place, including the Post Office Inspector's report. Presented to the House of Commons, 3rd May, 1886.—*Mr. Cameron (Inverness)*.....*Not printed.*
- 84.** Copy of an agreement between Her Majesty Queen Victoria, represented by the Minister of Railways and Canals, and the Baie des Chaleurs Railway Company, dated 7th November, 1885. Presented to the House of Commons, 6th May, 1886, by Sir Hector Langevin—
Not printed.
- 86.** Return to an Order of the House of Commons, dated 29th March, 1886, for a Return giving :
1. The number of Chinese immigrants that have arrived in Canada from the 20th day of August, 1885, to the 31st day of January, 1886, specifying the ports at which such immigrants have arrived. 2. The number that have arrived direct from China. 3. The number that have arrived from other countries, specifying the countries. 4. The total amount of duty collected from such immigrants. 5. The number of Chinese that have entered as tourists, merchants, men of science or students. 6. Whether in either case (if any) certificates were presented from the Chinese Government endorsed by the chargé d'affaires, consul or consular agent, or other representative of Her Majesty, at the place where the same was granted, or at the port or place of departure. 7. The cost to the Department of Customs, in consequence of the administration by that Department of the Act restricting and regulating Chinese immigration into Canada. 8. Copies of all the correspondence (if any) between trades unions or other societies, corporate or incorporate, or persons and the Department of Customs, urging more strict supervision over Chinese immigration, together with complaints (if any) against any officer of Customs in connection with the administration of said Chinese Restriction Act. 9. The total number of Chinese persons that have left Canada during the same period. Presented to the House of Commons, 11th May, 1886.—*Mr. Gordon*...*Printed for Sessional Papers only.*

87. Return to an Address of the House of Commons to His Excellency the Governor General, dated 4th March, 1886, for copies of: 1. All Orders in Council or Departmental Orders respecting the putting in operation "The Act respecting the Electoral Franchise." 2. All correspondence between the Government or any Department of it and said revising officers. Presented to the House of Commons, 25th May, 1886.—*Mr. Cameron (Huron)*.....*Not printed.*
- 87a. Return (*in part*) to an Order of the House of Commons, dated 1st April, 1886, for statements from all revising officers in regard to the arrangements made by them for the printing of the voters' lists in their respective electoral divisions, showing whether tenders were called for, for such printing, or written contracts entered into for its performance, with copies of such contracts; names of parties with whom agreements (written or verbal) were made for such printing, and number of times lists are to be printed; stating rates allowed, per name or otherwise, number of names on first list, whether first list is printed by polling sub-divisions or not, manner of making alterations and additions after first printing, and all other details of such arrangements, agreements and contracts for printing said lists. Presented to the House of Commons, 29th May, 1886.—*Mr. Casey*.....*Not printed.*
88. Memorandum as to whether it has come to the notice of the Government that American tow boats have been towing in British Columbia harbors and within the "three mile limit" in Dominion waters. Presented to the Senate, 19th May, 1886.—*Hon. Mr. Macdonald*...*Not printed.*
89. Return to an Order of the House of Commons, dated 19th April, 1886, for copies of correspondence, not already brought down, between the Government and the captain or any of the crew of the Life-Saving Service at Port Rowan, province of Ontario. Presented to the House of Commons, 27th May, 1886.—*Mr. Jackson*.....*Not printed.*
90. Correspondence, etc., in connection with the suit of *The Queen vs. the St. Catharines Milling and Lumbering Company*. Presented to the House of Commons, 29th May, 1886, by *Hon. Thomas White*.....*Not printed.*
91. Return to an Address of the House of Commons to His Excellency the Governor General, dated 29th March, 1886, for a Return of particulars of any claim made by John Heney, of Ottawa, for a refund of tolls paid by him upon vessels or wood passing through the Government canals, together with copies of all Orders in Council passed by the Government in relation to such claim, and copies of all correspondence between the Government and the said John Heney, or any other person, respecting such claims for refund. Presented to the House of Commons, 31st May, 1886.—*Mr. Trow*.....*Not printed.*

CANADA.

ANNUAL REPORT

OF THE

MINISTER OF PUBLIC WORKS

FOR THE

FISCAL YEAR 1884-85

ON THE WORKS UNDER HIS CONTROL.

SUBMITTED IN ACCORDANCE WITH THE PROVISIONS OF THE ACT THIRTY-FIRST
VICTORIA, CHAPTER TWELVE, SECTION NINETEEN, AS AMENDED BY
THE ACT FORTY-SECOND VICTORIA, CHAPTER SEVEN.

Printed by Order of Parliament.



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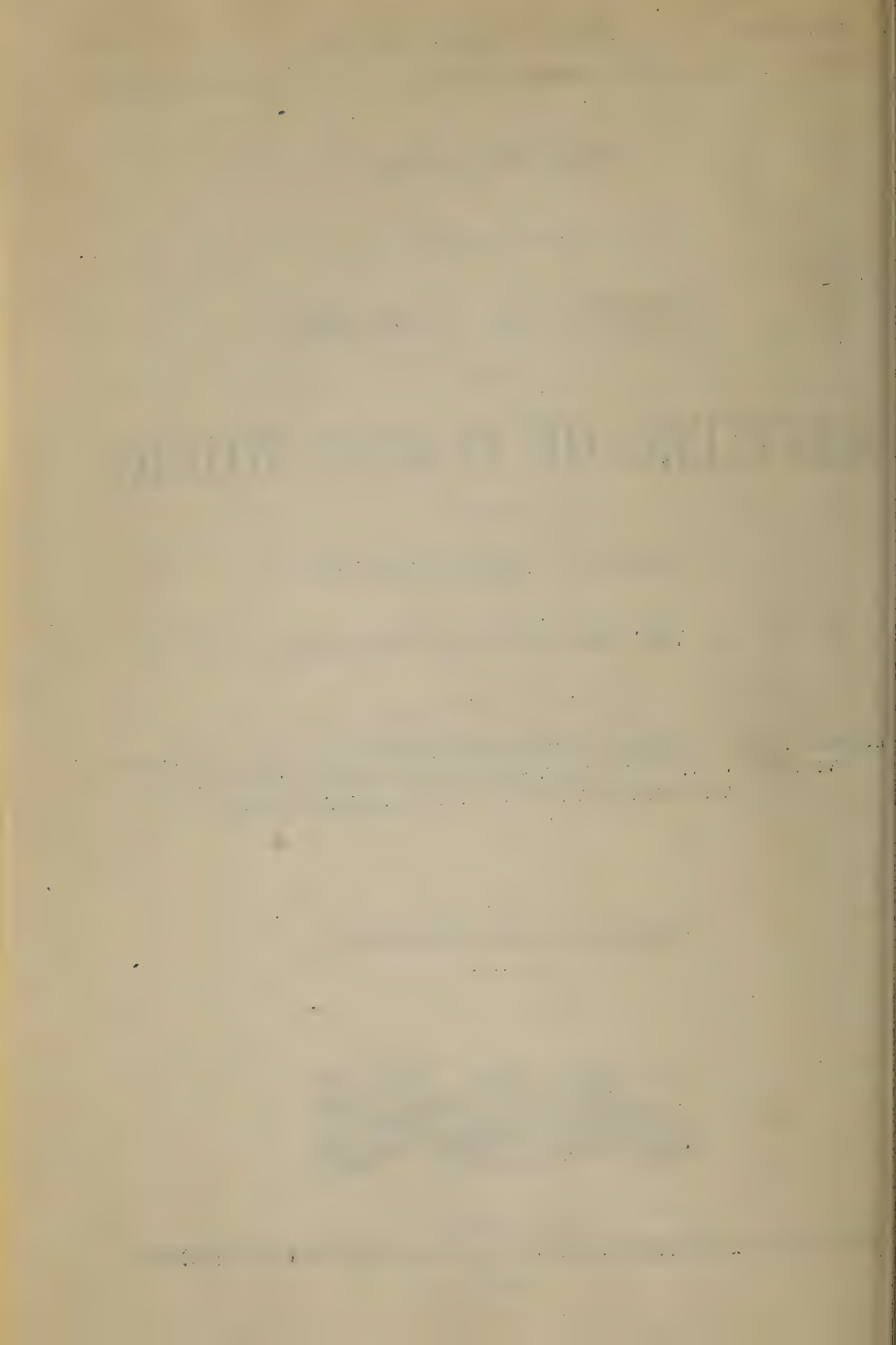


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CANADA.

R E P O R T

OF THE

MINISTER OF PUBLIC WORKS

FOR THE

FISCAL YEAR ENDED 30TH JUNE, 1885.

To His Excellency the Most Honourable Henry Charles Keith Petty-Fitzmaurice, Marquis of Lansdowne, in the County of Somerset, Earl of Wycombe, of Chipping Wycombe, in the County of Bucks, Viscount Caln and Calnstone, in the County of Wilts, and Lord Wycombe, Baron of Chipping Wycombe, in the County of Bucks, in the Peerage of Great Britain; Earl of Kerry and Earl of Shelburne, Viscount Clanmaurice and Fitzmaurice, Baron of Kerry, Lixnaw and Dunkerron, in the Peerage of Ireland; Governor General of Canada, and Vice Admiral of the same, &c.;

MAY IT PLEASE YOUR EXCELLENCY :

In compliance with the requirements of the Act 31 Victoria, Chapter 12, assented to on 21st December, 1867, I have the honor to submit the Annual Report of the Department of Public Works, for the fiscal year ended 30th June, 1885.

The report contains an abstract of the general expenditure, showing the total amount appropriated by Parliament, and available from other sources, for expenditure on Public Works throughout the Dominion during the past fiscal year, together with a description of the works executed; and is accompanied by thirty-one appendices giving the Annual Reports of the Chief Engineer, Chief Architect and other officers of the Department, together with a number of tables and other statements containing information pertaining to this Department.

The works under the control of this Department are :—

PUBLIC BUILDINGS, their construction and maintenance.

HARBOURS AND PIERS, their improvement and construction.

WORKS ON NAVIGABLE RIVERS.

DREDGING AND DREDGE VESSELS.

ROADS AND BRIDGES.

SLIDES AND BOOMS.

TELEGRAPHS.

GENERAL EXPENDITURE.

By the Act 47 Victoria, Chapter 2, assented to on the 19th April, 1884, the sum of \$3,476,304.78 was appropriated for expenditure on Public Works, during the fiscal year ending 30th June, 1885; and by the Act 48-49 Victoria, Chapter 41, assented to on 20th July, 1885, the further sum of \$287,950.86 was granted for the

same purpose. In addition to these amounts, the sum of \$386,509.61, unexpended balance of appropriations for 1883-84, was carried forward, and the sum of \$86,923.52 was contributed by Provincial Governments, Municipalities and other Corporations, towards the construction of works partly of a Provincial or Local character. The total amount, therefore, available from all sources was \$4,237,688.77, of which the sum of \$2,682,624.35 was expended during the fiscal year, 1884-85, \$162,845.90 lapsed on the 30th September, 1884, and the balance remained unexpended on 30th June, 1885, but was carried over by special warrant for the unfinished works then in progress. The following table shows the total amount available for each service, amount lapsed and the amount expended :—

	Total Amount available.	Lapsed on 30th September, 1884.	Expended in Fiscal Year 1884-85.
Public Buildings.....	\$1,836,269 15	\$81,814 01	\$1,369,460 72
Harbours and Rivers....	1,806,988 98	68,299 59	844,165 55
Dredges and Dredging...	174,000 00	.....	161,703 44
Slides and Booms.....	156,750 00	.....	109,635 72
Roads and Bridges.....	36,135 38	.....	20,143 79
Telegraph Lines.....	161,493 74	12,540 78	132,273 10
Miscellaneous	66,061 52	191 52	45,242 03
	<u>\$4,237,688 77</u>	<u>\$162,845 90</u>	<u>\$2,682,624 35</u>

In addition to this expenditure, the following amounts have been paid under the authority of special Acts of Parliament :—

Ship Channel between Quebec and Montreal.....	\$300,000 00
Quebec Harbour Improvement.....	282,931 00
Lévis Graving Dock.....	110,000 00
Total.....	<u><u>\$692,931 00</u></u>

Below will be found details of the expenditure, by Provinces, of the amounts available for each service as given above.

PUBLIC BUILDINGS.

The amount granted by the Act 47 Victoria, Chapter 2, for the construction, repairs and maintenance of Public Buildings was \$1,443,740.00, and by the Act 48-49 Victoria, Chapter 41, the further sum of \$91,380.20 was voted for the same purpose.

In addition to these sums, there was carried forward the unexpended balance of appropriations for 1883-84, \$252,147.95; and the sum of \$30,000 contributed by the Provincial Government of Quebec and the City of Quebec (\$15,000 each) towards the erection of the Quebec Drill Hall; the sum of \$8,000.00 was contributed by the City of Winnipeg towards the erection of the new Drill Hall, and the sum of \$11,000.00 for Indian Industrial Schools in the North-West was transferred from the Department of Indian Affairs. The total amount, therefore, available for Public Buildings during the fiscal year was \$1,836,269.15, of which the sum of \$1,369,460.72 was spent; \$81,814.01 lapsed on 30th September, 1884, and the balance remained unexpended on 30th June, 1885. The following table gives the total amount available for expenditure in each Province, together with the amount lapsed and amount expended:—

	Total Amount available	Lapsed on 30th September, 1884.	Expended in Fiscal Year 1884-85.
Nova Scotia.....	\$125,800 30	\$ 2,922 53	\$ 73,182 42
Prince Edward Island.....	60,339 50	4,200 00	25,168 92
New Brunswick.....	141,223 65	7,376 39	106,412 05
Quebec.....	401,833 93	14,269 48	303,374 32
Ontario.....	761,982 39	6,504 35	598,234 53
Manitoba.....	175,638 31	19,069 76	147,474 51
North-West Territory.....	74,385 00	1 70	63,195 81
British Columbia.....	79,362 90	27,469 80	38,314 16
England.....	703 17	.....	703 17
Public Buildings Generally.	15,000 00	.....	13,400 83
	<u>\$1,836,269 15</u>	<u>\$81,814 01</u>	<u>\$1,369,460 72</u>

HARBOURS AND RIVERS.

The amount granted by the Act 47 Victoria, Chapter 2, for the improvement and maintenance of harbours and rivers throughout the Dominion was \$1,516,839.78; and by the Act 48-49 Victoria, Chapter 41, the further sum of \$158,720.66 was voted for the same purpose. In addition to these sums, there was carried forward the unexpended balance of appropriations for 1883-84, \$94,140.40, and the sum of \$37,288.14 was contributed by Municipal and other Corporations. The total amount, therefore, available from all sources, was \$1,806,988.98. The sum of \$844,165.55 was spent; \$68,299.59 lapsed on 30th September, 1884, and the balance was

unexpended on 30th June, 1885. The following table gives the total amount available, by Provinces, together with the amount lapsed and amount expended :—

	Total Amount available.	Lapsed on 30th September, 1884.	Expended in Fiscal Year 1884-85.
Nova Scotia.....	\$ 58,116 71	\$ 363 39	\$ 46,417 73
Prince Edward Island.....	129,571 02	53,222 79	64,849 80
New Brunswick.....	225,879 79	.....	47,242 34
Maritime Prov. Generally.	11,500 00	.....	*
Quebec	229,151 68	14,713 41	216,850 72
Ontario.....	497,280 00	.....	393,664 16
Manitoba.....	11,000 00	.....	10,820 28
North-West Territories....	10,000 00	.....	6,567 00
British Columbia.....	628,489 78	.....	52,146 34
Generally	6,000 00	.....	5,607 18
	<u>\$1,806,988 98</u>	<u>\$68,299 59</u>	<u>\$844,165 55</u>

DREDGES AND DREDGING.

At the Session of 1884 the sum of \$30,000.00 was voted for new dredging plant, \$30,000.00 for repairs to dredge vessels, and \$114,000.00 for dredging, making a total of \$174,000.00 available for the service; of which the sum of \$161,703.44 was spent during the fiscal year, and the balance remained unexpended on 30th June, 1885. The following table shows amount available and amount expended, by Provinces :—

	Total Amount available.	Lapsed on 30th September, 1884.	Expenditure in Fiscal Year 1884-85.
New Plant.....	\$30,000 00	.....	\$21,424 70
Repairs	30,000 00	.....	26,939 59
Nova Scotia	42,000 00	.....	15,467 30
Prince Edward Island.....		.....	7,199 38
New Brunswick.....		.....	19,333 32
Quebec.....	20,000 00	.....	18,839 77
Ontario	20,000 00	.....	19,895 38
Manitoba	10,000 00	.....	9,965 89
British Columbia	17,000 00	.....	17,724 77
General Service.....	5,000 00	.....	4,913 34
	<u>\$174,000 00</u>	<u>.....</u>	<u>\$161,703 44</u>

* Expenditure included in amounts charged to Nova Scotia, Prince Edward Island and New Brunswick.

DESCRIPTION OF WORKS DONE.

The following is a description of the work done during the fiscal year on Public Buildings, Harbours, Rivers and Dredging, arranged in alphabetical order by Provinces; giving the amount available for expenditure, amount spent during the year, and total amount expended on the building or work since Confederation. Where no special appropriation is mentioned the amount was paid out of some general vote.

PROVINCE OF NOVA SCOTIA.

AMHERST.

Amherst, the chief town of Cumberland County, is situated at the head of Chignecto Bay, and is 138 miles north-west of Halifax,

At the Session of 1884 the sum of \$10,000.00 was granted towards the construction of a Public Building to accommodate the Postal, Customs and other services, on a portion of the Court House lot, which was granted to the Crown by the town. On 17th September, 1884, a contract was entered into with Messrs. Rhodes, Curry & Co., for the erection of the building, for the sum of \$27,374.00. The building will have a frontage of 61 feet by a depth of 40 feet, two stories high, with basement and attic. The outer walls are to be of red sandstone, random coursed and with cut dressings; the floors, roofs and partitions of wood; the roofs covered with slate and galvanized iron. The main feature in the centre of the front will be a large dormer window surmounted by a wooden clock-tower. The basement will contain the heating furnaces, fuel room and store rooms; the ground floor will be occupied by the Post Office and the office of the Intercolonial Railway Solicitor; the first floor will be occupied by the Customs and Inland Revenue Departments and the Government Savings Bank, and the attic will accommodate the Caretaker. In rear of the building will be two one-story buildings, one to be used as the Examining Warehouse and Weights and Measures Offices, and the other as part of the Post Office. Expenditure during the fiscal year, \$12,995.23. Total expenditure on this building, \$13,029.75.

ANTIGONISH.

Antigonish is the county town of the County of Antigonish, and is situated on the Halifax and Cape Breton Railway, 41 miles east of New Glasgow.

During the fiscal year, the sum of \$169.43 was spent in completing the alterations to the building, mentioned in last year's report as having been purchased for the accommodation of the Customs, Postal and other services; and \$25.98 for repairs. Total expenditure on this building, \$5,520.30 for construction; and \$25.98 for repairs.

ARICHAT.

Arichat is the chief town in the County of Richmond, and is about 30 miles distant from Canso.

At the Session of 1884 the sum of \$10,000.00 was voted for the purpose of erecting a Public Building to accommodate the Postal, Customs and other offices, on a site purchased from Mrs. S. Ballam. Plans were prepared and tenders invited, none of which were accepted, and no further action had been taken up to the close of the fiscal year. Total Expenditure, \$1,226.27.

BADDECK.

Baddeck is the chief town of Victoria County, and is situated on the north side of the Great Bras d'Or Lake, about 40 miles from Sydney.

At the Session of 1884 the sum of \$4,000.00 was voted towards the erection of a building for the accommodation of the Postal, Customs and other services. On the 7th August, 1884, a site 100 by 80 feet, on the south side of Main street, was purchased from Mr. A. S. McDonald for the sum of \$1,000.00; and on 20th June, 1885, a contract was entered into with Mr. R. H. Hill for the erection of the building, for the sum of \$7,500.00. The building will be two stories and basement, built of rubble sandstone, with cut dressings; partitions, floors and roof of wood, the latter covered with slate and galvanized iron. The main building will be 52 feet 6 inches by 24 feet 6 inches. Expenditure during the fiscal year, \$1,133.35, which is the only expenditure made at this place.

BENACADIE POND.

Benacadie Pond, in the County of Cape Breton, is situated on the north-east side of the Great Bras d'Or Lake.

At the Session of 1884 the further sum of \$1,500.00 was voted towards the continuance of the work of improving the entrance to this harbour, mentioned in

last year's report as being in progress, which sum, added to \$981.14 unexpended balance brought forward from 1883-84, made a total of \$2,481.14 available for the purpose. During the summer of 1884 the dredge "Cape Breton" completed a channel, 650 feet in length, 60 feet wide and 12 feet deep, through a sand bar which separated the pond from Great Bras d'Or Lake, the sides of the channel being protected by brush and pile work. Expenditure during the fiscal year, \$1,500.00. Total expenditure at this place since Confederation, \$12,018.86.

BOULARDERIE.

Boularderie, Cape Breton County, is on the north side of Boularderie Island, Great Bras d'Or Lake, 12 miles south-west from Baddeck.

At the Session of 1884 the sum of \$2,000.00 was voted towards the construction of a landing pier at this place; and during the year a wharf, 134 feet in length and 20 feet wide, with a head 50 by 20 feet, has been built. Expenditure during the fiscal year, \$2,000.00, which is the only expenditure at this place since Confederation.

BROOKLYN (LIVERPOOL BREAKWATER).

Brooklyn, or Herring Cove, in Queen's County, is on the east side of Liverpool Bay, about half a mile outside the bar of Liverpool Harbour.

During the summer of 1884 some temporary repairs were executed to the sloping face and covering of the breakwater. Expenditure during the fiscal year, \$600.00. Total expenditure at this place since Confederation, \$71,139.50.

CAMPBELL'S POND.

Campbell's Pond, Inverness County, is at the head of Whycocomagh Bay, an arm of Great Bras d'Or Lake.

The dredge "Cape Breton" worked at this place from 4th to 18th September, 1884, removing 4,940 cubic yards of material. Expenditure, \$602.30.

CANADA CREEK.

Canada Creek, King's County, is on the south shore of the Bay of Fundy, 60 miles east of Digby Gut.

During the year the western pier, which had been much damaged by the sea, was repaired and placed in good order, and a block, 55 feet in length and 10 feet wide on top, was built on the seaward side, at the inner end, to protect the old work at that point. Expenditure, \$747.08. Total expenditure at this place since Confederation, \$5,747.08.

CHEVERIE.

Cheverie, Hants County, is on the north shore of the Basin of Minas, near the mouth of the River Avon, about 16 miles from Windsor.

At the Session of 1884 the sum of \$2,500 was voted to continue the construction of the breakwater at this place, mentioned in last year's report as being built for the purpose of forming a small harbour of refuge, and at the Session of 1885 a further grant of \$1,178.98 was made, which sums, added to \$4,623.76 unexpended balance carried forward from 1883-84, made a total of \$7,942.74 available for the purpose. During the year the work has been completed. Expenditure, \$8,304.43. Total expenditure at this place since Confederation, \$17,377.52.

CHIPMAN'S BROOK.

Chipman's Brook, King's County, is on the southern shore of the Bay of Fundy, 64 miles east of Digby Gut.

At the Session of 1884 the sum of \$1,000.00 was voted towards continuing the repairs to the pier at this place, mentioned in last year's report as being in progress; and during the year the sum of \$949.78 has been spent on the work. Further repairs are required. Total expenditure at this place since Confederation, \$5,197.99.

CHRISTMAS ISLAND.

Christmas Island, Cape Breton County, lies close to the south-eastern shore of the Little Bras d'Or Lake, about $1\frac{3}{4}$ miles from Barra Strait.

The dredge "Cape Breton" was at work at this place from 19th July to 3rd September, 1884, cutting a channel, 770 feet in length, 80 feet wide at the outer and 90 feet wide at the inner end and 12 feet deep, through a sand bar which obstructed the entrance to the harbour. Expenditure, \$2,322.00, which is the only expenditure at this place since Confederation.

COFFIN'S ISLAND.

Coffin's Island, Queen's County, is about $\frac{2}{3}$ of a mile in length, and lies on the north side of, and at the eastern entrance to, Liverpool Bay.

At the Session of 1884 the sum of \$1,000.00 was voted to continue the protection of the low portion of the western beach; and during the fiscal year the sum of \$994.70 has been expended in filling in with cribwork the breach in the beach. Total expenditure at this place since Confederation, \$5,984.84.

COW BAY.

Cow Bay, in the County of Cape Breton, is on the eastern coast of the island, about 18 miles south-east of Sydney.

At the Session of 1884 the sum of \$3,000.00 was voted towards continuing the repairs to the breakwater at this place, which was greatly damaged by storms in the early part of 1883, and at the Session of 1885 a further grant of \$2,300.00 was made, which sums, added to \$1,815.34 unexpended balance carried forward from 1883-84, made a total of \$7,115.34 available for the purpose. During the fiscal year the following work was done: 1,078 close piles driven and secured, 40,000 cubic feet of close-faced crib work built, 2,051 cubic yards of ballast put in, 32,000 feet B. M. of flooring put on, 98 lineal feet of face sheathed, 5 new mooring piles placed in position and 6 others sheathed with hardwood. Expenditure during the fiscal year \$7,107.54. Total expenditure at this place since Confederation, \$144,836.30.

D'ESCOUSSE HARBOUR.

D'Escousse Harbour, on the north side of Ile Madame, Richmond County, lies inside of Bernard Island, at the eastern end of Lennox Passage.

The dredge "George McKenzie" worked at this place from the 1st to the 24th of October, 1884, making a straight cut at the entrance to the harbour, 60 feet

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wide and 10 feet deep at low water, and, also, dredging around the public wharf, removing altogether 4,860 cubic yards of material. Expenditure during the fiscal year, \$2,634.31.

DIGBY.

Digby, the shire town of Digby County, is situated at the western end of Annapolis Basin, and is the terminus of the Western Counties Railway.

At the Session of 1884 the sum of \$1,500.00 was voted for the construction of two warehouses on the pier at this place, one 36 by 30 feet on the outer end of the pier, and the other 80 by 18 feet, with an addition 36 by 20 feet, at the head of the inclined landing. On the 28th November, 1884, a contract was entered into with Messrs. D. C. & D. W. Clark for the construction of the warehouses for \$1,545.00, and the work has been satisfactorily completed. Expenditure during the fiscal year, \$1,752.21. Total expenditure on this pier since Confederation, \$17,388.47.

FIVE ISLANDS.

Five Islands, in Colchester County, are situated about 14 miles to the eastward of Parrsboro'.

At the Session of 1884 the sum of \$2,500.00 was voted for the purpose of constructing a pier at "Harrow Beach," and during the fiscal year a wharf 75 feet long and 45 feet wide has been built. Owing to the great rise and fall of the tide at this part of the head of the Bay of Fundy, the work is dry at low water, and can only be approached at or near high tide. There is then a depth of 20 feet at its outer end, and ample facilities are afforded to vessels. Expenditure, \$2,499.94, which is the only expenditure at this place since Confederation.

GREAT VILLAGE RIVER (LONDONDERRY.)

Great Village River, Colchester County, empties into Cobequid Bay near its head, about 18 miles from Truro.

At the Session of 1884 the sum of \$3,250.00 was voted to continue the work of straightening this river by cutting a channel 1,850 feet in length, mentioned in last year's report as being in progress, and during the year the work has been completed. Expenditure, \$850.00. Total expenditure at this place since Confederation, \$5,100.00.

HALIFAX.

Halifax, the Capital of the Province, is situated on the west side of Chebucto Bay, or Halifax Harbour, a deep inlet of the Atlantic Ocean.

DOMINION BUILDING.

At the Session of 1884 the sum of \$9,000.00 was voted for general alterations and repairs to this building, including re-painting, putting new letter box fronts in the Post Office, &c., and the works were partly completed during the fiscal year. Expenditure, \$6,694.83 for construction, and \$231.49 for repairs. Total expenditure on this building since Confederation, \$93,058.19 for construction, and \$59,149.35 for repairs.

HARBOUR.

A small expenditure, amounting to \$29.40, was made in connection with the establishment of a Graving Dock.

HALL'S HARBOUR.

Hall's Harbour, in King's County, is on the south shore of the Bay of Fundy, 11 miles north of Kentville, the shire town.

In 1884 some small repairs were made to the western pier of this place which acts as a breakwater to the harbour; but during the severe gales of 5th and 6th November, 1884, the sea carried away the entire outer block, and threw up a gravel bank which prevents vessels from entering or leaving the harbour. Expenditure \$750.00, which is the only expenditure since Confederation.

HARBOURVILLE.

Harbourville, in King's County, is on the south shore of the Bay of Fundy, and about 55 miles east of Digby Gut.

At the Session of 1884 the sum of \$1,000.00 was voted towards continuing the repairs to the two piers forming this harbour, which were mentioned in my last report as being in progress. During the year the work built in 1883-84 and the ends of the breakwater were close sheathed, the outer 90 feet of the pier raised 2 feet and replanked, while 200 feet of the eastern pier were refaced and new fenders placed on the inner face of the western pier. Expenditure, \$1,000.00 Total expenditure at this place since Confederation, \$4,499.25.

HARBOURS GENERALLY.

At the Session of 1884 the sum of \$10,000.00 was voted for general repairs and improvements to harbours in the Maritime Provinces, and at the Session of 1885 a further grant of \$1,500.00 was made. The total expenditure out of this vote was \$9,841.94.

HAY COVE.

Hay Cove, in Richmond County, is an inlet of the Great Bras d'Or Lake, and is 10 miles distant from St. Peter's Canal.

In 1881 the inhabitants of the district built a small wharf, 41 feet in length by 21 feet wide, on the east side of the Cove, and during the last fiscal year the Department raised and strengthened this work, and built an addition, 27 feet long by $21\frac{1}{2}$ feet wide, close up against the old work. Expenditure, \$250.00, which is the only expenditure at this place since Confederation.

KINGSPORT.

Kingsport, formerly Oak Point, is in King's County, on the western shore of the Basin of Minas, between the mouth of Cornwallis River and Cape Blomidon.

The sum of \$9.22 was spent on repairs to the pier at this place, which was built by the Department in 1872-73. Total expenditure since Confederation \$24,682.72.

LUNENBURG.

Lunenburg, the shire town of the County of the same name, is situated at the head of Lunenburg Bay, about 40 miles westward of the entrance to Halifax Harbour.

HARBOUR.

The dredging, referred to in last year's report as being in progress, was finished by the dredge "George McKenzie," on 11th July, 1884, when a channel in front of the wharves, 850 feet in length and 75 feet wide, was dredged to depth of 17 feet at low water. Expenditure, \$2,048.91. Total expenditure for dredging since Confederation, \$22,194.57.

MARINE HOSPITAL.

During the fiscal, the sum of \$302.00 was expended on necessary repairs. Total expenditure on this building, \$6,502.25 for construction; and \$588.00 for repairs.

MABOU.

Mabou, in Inverness County, is situated on the Gulf of St. Lawrence, 6 miles north of Port Hood.

At the Session of 1884, the sum of \$1,500.00 was voted towards continuing the repairs to the harbour works at this place, and during the year the amount has been expended on the following works: 197 feet of the pier extending along the south side of the channel close piled, the outer end of the pier close piled, and a talus of stone deposited around it. The covering was repaired where necessary, and the old breastwork at Rankin's Point was refilled with ballast and repaired. From the 27th May to 30th June, 1885, the dredge "Canada" was engaged in opening the channel entrance to the harbour, removing 11,340 cubic yards of material, at a cost of \$2,330.91. Total expenditure at this place since Confederation, \$105,779.85.

MARGARETVILLE.

Margaretville, in Annapolis County, is on the Bay of Fundy, 8 miles from Wilmot.

At the Session of 1884 the sum of \$1,500.00 was voted for repairing the break-water at this place, which was built by the Provincial Government, and twice repaired by this Department; but up to the close of the fiscal year no work had been done and no expenditure made. Total expenditure at this place since Confederation, \$9,150.00.

METEGHAN COVE.

Meteghan Cove, in Digby County, is on the south side of St. Mary's Bay, about 43 miles from Digby.

During the year repairs were made to the pier, which was damaged by the gale of November, 1884. Expenditure, \$96.64. Total expenditure since Confederation, \$15,831.43.

NEW GLASGOW.

New Glasgow, in the County of Pictou, is situated on the East River, near its entrance into Pictou Harbour, and is 104 miles from Halifax by the Intercolonial Railway.

At the Session of 1884 the further sum of \$10,000.00 was voted towards the erection of the building to accommodate the Customs, Postal and other services, a description of which appeared in last year's report, which sum added to \$5,874.85 unexpended balance of appropriation carried forward from 1883-84, made a total of \$15,874.85 available. During the year work on the building has progressed fairly, and it will probably be completed during the next fiscal year. Expenditure during the year, \$13,991.04. Total expenditure on this building, \$18,884.19.

NORTH SYDNEY.

North Sydney, in Cape Breton County, is on the North-West Arm of Sydney Harbour, 18 miles from Sydney.

At the Session of 1884 the sum of \$7,500.00 was voted towards the erection of a Public Building at this place to accommodate the Customs, Postal and other services. On 22nd August, 1884, a site having a frontage of 75 feet on Main street by a depth of 100 feet was purchased from Mr. Robert Masgrave for the sum of \$1,800.00, and at the close of the fiscal year plans and specifications for the building were being prepared. Expenditure during the year, \$1,908.63. Total expenditure, \$1,959.13.

OGILVIE'S WHARF.

Ogilvie's Wharf, King's County, is on the north shore of the Bay of Fundy, about midway between Harbourville and Morden.

At the Session of 1884 the sum of \$3,000.00 was voted for the purpose of repairing this wharf, which was built many years ago by the Local Government. The pier is 250 feet long by 35 feet wide, and during the year a block 20 feet in length has been added to the outer end, and the outer 100 feet of the old work repaired. Expenditure \$2,982.01, which is the only expenditure since Confederation.

OYSTER POND.

Oyster Pond, in the County of Guysborough, is situated on the north-west side of Chedabucto Bay.

With the unexpended balance of \$527.49, brought forward from the appropriation for 1883-84, the works referred to in last year's report as being in progress were completed. Total expenditure at this place since Confederation, \$4,250.01.

PARRSBORO', OR PARTRIDGE ISLAND RIVER.

Parrsboro', or Partridge Island River, is in the County of Cumberland, on the north side of the Basin of Minas.

During the latter part of the winter of 1883-84 the pier at this place was again damaged by running ice, and the necessary repairs were effected. Expenditure, \$800.00. Total expenditure since Confederation, \$5,800.00.

PETIT DE GRAT.

Petit de Grat is on the south shore of Ile Madame, Richmond County, about 3 miles from Arichat.

The protection work built at this place in 1880 was repaired during the year. Expenditure, \$250.00. Total expenditure since Confederation, \$3,250.00.

PETITE RIVIERE.

Petite Rivière, in the Country of Lunenburg, empties into Palmerston Bay, an inlet of the Atlantic Ocean.

At the Session of 1884 the sum of \$5,000.00 was voted toward the construction of a breakwater at Cherry Point; but up to the close of the fiscal year work has not been commenced and no expenditure had taken place.

PICTOU.

Pictou, the chief town of the County of Pictou, is situated on the harbour of the same name, which opens into the Strait of Northumberland.

CUSTOM HOUSE.

During the year the sum of \$491.25 was spent on necessary repairs. Total expenditure on this building, \$25,070.05 for construction ; and \$3,463.48 for repairs.

MARINE HOSPITAL.

At the Session of 1884 the sum of \$550.00 was voted for grading the grounds, fencing, &c., and during the year the work has been carried out. Expenditure, \$763.38 for construction ; and \$420.00 for repairs. Total expenditure on this building since Confederation, \$12,410.36 for construction ; and \$451.25 for repairs.

PORT GREVILLE.

Port Greville, in Cumberland County, is situated on Greville Bay, about 10 miles from Parrsboro'.

At the Session of 1884 the sum of \$4,000.00 was voted for the purpose of extending the beach protection works at this place ; but up to the close of the fiscal year nothing had been done and no expenditure had taken place. Total expenditure at this place since Confederation, \$6,028.00.

PORT HASTINGS.

Port Hastings, or Plaister Cove, is in Inverness County, on the Gut of Canso, about 72 miles from New Glasgow.

The dredge "George McKenzie" did a little work at this place, removing 270 cubic yards of material. Expenditure, \$146.35, which is the only expenditure since Confederation.

PORT HAWKESBURY.

Port Hawkesbury, in Inverness County, is situated on the Gut of Canso, 72 miles from New Glasgow.

In May, 1885, the dredge "Cape Breton" removed 320 cubic yards of material from the marine slip. Expenditure, \$39.01.

PORT HOOD.

Port Hood, the shire town of Inverness County, is situated on the western Coast of Cape Breton, 20 miles north of the entrance to the Gut of Canso.

At the Session of 1884 the sum of \$8,000.00 was voted for the purpose of completing the work of protecting with rip-rap the breakwater at this place, which was mentioned in last year's report as being under contract; and during the year the contract has been finished. Expenditure, \$5,116.00. Total expenditure at this place since Confederation, \$40,049.12.

PORT MULGRAVE.

Port Mulgrave, Guysborough County, is on the western side of the Strait of Canso, and is now the terminus of the Eastern Counties Railway.

This being the point of departure of the steamers plying to Cape Breton, some dredging was done by the dredge "George McKenzie." Quantity of material removed, 1,372½ cubic yards. Expenditure, \$743.95.

PORTER'S LAKE.

Porter's Lake, a tidal lake in Halifax County, is about 20 miles north-east of the City of Halifax.

During the year the sum of \$200.00 was spent in clearing out the deposit which had accumulated in the small channel which leads from this lake to the sea. Expenditure, \$200.00. Total expenditure at this place since Confederation, \$400.00.

RIVER JOHN.

The River John, in the County of Pictou, falls into John Bay, 4 miles south-east from Cape John.

During the past fiscal year the deepening of the channel of this river has been continued up to the highway bridge, which effectually stops any further improvement. Expenditure, \$2,190.38. Total expenditure on dredging since Confederation, \$22,243.98.

SYDNEY.

Sydney, the shire town of Cape Breton County, is situated on the east coast of the Island of Cape Breton, at the head of Sydney Harbour, and is 285 miles north-east of Halifax.

MARINE HOSPITAL.

During the year the sum of \$302.50 was spent on repairs to this building. Total expenditure, \$9,939.28 for construction; and \$302.50 for repairs.

PUBLIC BUILDING.

At the Session of 1884 the sum of \$5,000.00 was voted towards the erection of a building to accommodate the Customs, Postal and other services; but up to the close of the fiscal year a site had not been obtained, and no expenditure had taken place.

QUARANTINE STATION.

At the Session of 1884 the sum of \$2,500.00 was voted towards the completion of this building, a full description of which appeared in the Report for 1882-83, and the building is now completed and occupied. Expenditure during the year, \$473.00. Total expenditure on these buildings, \$4,902.75 for construction.

THREE FATHOM HARBOUR.

In the County of Halifax, about 14 miles to the eastward of the entrance to Halifax Harbour.

At the Session of 1884 the sum of \$600.00 was voted for the purpose of continuing the protection works at this place; and during the fiscal year they have been extended a further distance of 125 feet, and repairs made to the old work where required. Expenditure, \$597.23. Total expenditure since Confederation, \$4,597.17.

TRACADIE.

Big Tracadie Harbour is in the County of Antigonish, on the southern shore of St. George's Bay.

At the Session of 1884 the sum of \$2,750.00 was voted towards repairing the breakwater at this place, and at the Session of 1885 the further sum of \$600.00 was

granted for the same purpose. During the fiscal year the repairs executed consisted in close-piling the channel face of the breakwater, refilling it with ballast, rebuilding 170 feet of the breakwater and generally strengthening it. Expenditure, \$2,748.68. Total expenditure since Confederation, \$16,313.05.

TRURO.

Truro, the county town of Colchester County, is situated about 2 miles above the head of Cobequid Bay, and is an important point on the Intercolonial Railway.

At the Session of 1884 the sum of \$17,000.00 was voted towards the construction of the building required for the Customs, Postal and other services, which was fully described in last year's report, and the sum of \$5,587.72 being carried forward from 1883-84 the whole amount available was \$22,587.72. On 30th January, 1885, a contract was entered into with Mr. E. Chanteloup for heating apparatus for the sum of \$1,160.00; and at the close of the fiscal year the building was so near completion that it was expected it would be occupied in the autumn. Expenditure during the fiscal year, \$13,752.65. Total expenditure on this building, \$21,264.78.

TUSKET WEDGE.

In the southern part of the County of Yarmouth, about 13 miles from the town of Yarmouth.

At the Session of 1884 the sum of \$850.00 was voted towards the completion of a wharf commenced some years ago by the Government of Nova Scotia and the inhabitants of the district; and, in October, 1884, the work was finished. It has already proved of great benefit to the locality. Expenditure, \$849.98, which is the only expenditure at this place since Confederation.

WINDSOR.

Windsor, the shire town of the County of Hants, is situated on an arm of the Basin of Minas, 45 miles north-west of Halifax.

At the Session of 1884 the further sum of \$11,000.00 was voted towards the completion of the building intended to accommodate the Customs, Postal and other services, a full description of which appeared in last year's report, which sum added to \$4,309.24, carried forward from 1883-84, made a total of \$15,309.24, avail-

able for the purpose. On 30th January, 1885, a contract for heating apparatus was entered into with Mr. E. Chanteloup, for the sum of \$1,280.00. Work has been steadily carried on, and at the close of the year the building was so far advanced that completion and occupation were expected in the autumn. Expenditure during the fiscal year, \$15,638.91. Total expenditure on the building, \$19,940.00.

WHYCOCOMAGH.

Whycocomagh, in Inverness County, is situated on Whycocomagh Bay, an arm of the Great Bras d'Or Lake.

The dredge "Cape Breton" was engaged from 19th September to 30th October, 1884, in cutting a channel 120 feet in length, 50 feet wide and 8 feet deep at low water, into Campbell's Pond, so as to permit fishing boats and small crafts to enter; and, also, in opening a channel 50 feet in length and 65 feet wide, with 12 feet depth at low water, to the public wharf. Quantity of material removed 19,760 cubic yards. Expenditure, \$2,409.18, which is the only expenditure at this place since Confederation.

YARMOUTH.

Yarmouth, the shire town of Yarmouth County, is situated on a small bay setting up from the Atlantic, 205 miles south-west of Halifax, and is the terminus of the Western Counties Railway.

At the Session of 1884 the farther sum of \$10,000.00 was voted towards the construction of a building to accommodate the Customs, Postal and other services, on a site at the corner of Main and John streets, mentioned in last year's report as having been purchssed from Mr. Jacob Bingay, for \$6,000.00. Plans and specifications for the building were prepared and tenders invited; and, on 21st May, 1885, a contract was entered into with Messrs. Milliken, Gray & Wheaton for the sum of \$23,248.00. The building will be of brick, with stone dressings. The main portion will have a frontage of 42 feet 6 inches on Main street, by a depth of 36 feet, and will be two stories, with basement and attic. There will also be a one-story wing for Weights and Measures Office. The basement will contain furnace room, fuel and storage; the ground floor will be devoted to the Post Office; the first floor to the Customs, Inland Revenue and Savings Bank Offices, and the Caretaker will occupy the attic. The partitions, floors and roofs will be of wood, the latter covered with slate and galvanized iron. Expenditure during the fiscal year, \$112.49. Total expenditure, \$6,112.49.

PROVINCE OF PRINCE EDWARD ISLAND.

ANNANDALE.

Annandale Wharf is in Lot No. 56, King's County, on the north side of Grand River, near its entrance into Boughton Bay, 15 miles from Souris by road.

This is one of the piers built by the Local Government, and for which the sum of \$2,474.25 was paid out of the appropriation of \$53,222.19 voted at the Session of 1885 to pay the Local Government for its expenditure since Confederation on piers deemed of Federal importance. Necessary repairs were affected. Expenditure, \$2,474.25 for construction; and \$519.97 for repairs.

BELFAST.

Belfast is situated on the south side of Orwell Bay, in Lot No. 57, Queen's County.

The pier at this place was built by the Local Government, which has been paid \$4,355.04 for it out of the appropriation of \$53,222.19 voted at the Session of 1885 to recoup the Government of Prince Edward Island for expenditure on piers since Confederation. The pier received such repairs as would enable fall shipments of produce to be made therefrom. Expenditure, \$4,355.04 for construction, and \$400.45 for repairs.

CAMPBELL'S COVE.

Campbell's Cove is situated in the County of King's, on the north side of the island.

Out of the appropriation of \$53,222.19 made at the Session of 1885 to recoup the Local Government for expenditure on piers, the sum of \$100.00 was paid on account of this place. Total expenditure since Confederation, \$13,171.79.

CHARLOTTETOWN.

Charlottetown, the Capital of the Province, is situated on a neck of land between the North and Hillsborough Rivers, in Queen's County.

DOMINION BUILDING (NEW).

At the Session of 1884 the sum of \$30,000.00 was voted towards the construction of this building on the site of the old building destroyed by fire on the night of the 20th February, 1884. Plans and specifications were prepared by the Department, and tenders invited; and, on 13th April, 1885, a contract was entered into with Mr. T. C. Connor for the construction of the building, for the sum of \$57,397.00, and up to the close of the building season fair progress had been made. The main building will be 92 feet by 60 feet, two stories high, with basement and Mansard roof; and there will be a one-story annex 56 feet by 25 feet. The building will be of brick with stone dressing, the general design being bold, simple and effective. A full description will be found in Appendix No. 2, page 25. Expenditure during the fiscal year, \$1,426.58.

DOMINION BUILDING (TEMPORARY).

On the destruction of the old Dominion Building, the premises formerly occupied by the Bank of Prince Edward Island were leased and altered and fitted up to accommodate the Postal and other offices, at an expenditure of \$6,207.14 for construction; and \$907.73 for repairs.

CHINA POINT.

China Point is situated on the north side of Orwell Bay, in Lot No. 50, Queen's County.

The pier at this place is one of those built by the Local Government, the cost of which since Confederation has been repaid out of the appropriation of \$53,222.19 voted at the Session of 1885 for that purpose. Since its assumption by the Dominion Government such repairs as were required have been effected. Expenditure, \$3,436.47 for construction; and \$213.58 for repairs.

CRAPAUD (VICTORIA).

Victoria is a thriving settlement in Queen's County, and is situated at the head of navigation in Crapaud Basin, about midway between Charlottetown and Summerside.

The pier at this place is one of those built by the Local Government, the cost of which since Confederation has been repaid out of the appropriation of \$53,222.19, voted at the Session of 1885 for that purpose; and since its assumption by the Dominion Government it has been placed in thorough repair. Expenditure, \$4,267.72 for construction; and \$953.52 for repairs.

GEORGETOWN.

Georgetown, the shire town of King's County, is situated on the peninsula between the Brudenell and Cardigan Rivers.

DRILL SHED.

During the fiscal year some alterations and repairs have been made to this building at a cost of \$55.20 for construction, and \$25.80 for repairs, which are the only expenditures since Confederation.

PIER.

The Queen's Pier, on the north side of Montague River, was built by the Local Government, and the amount expended on it since Confederation, \$2,254.24, has been refunded out of the appropriation of \$53,222.19 voted at the Session of 1885 for that purpose. Since its assumption by the Dominion Government extensive repairs have been made at a cost of \$1,000.00.

HICKEY'S PIER.

Hickey's Pier is in Queen's County on the eastern side of the East or Hillsboro' River, about 10 miles from Charlottetown.

The pier at this place is one of those built by the Local Government, and the cost of it since Confederation has been repaid out of the appropriation of \$53,222.19 voted at the Session of 1885 for that purpose. Since its assumption by the Dominion Government necessary repairs were made to the roadway, floors, stringers, planking and capping; fenders were put on, and the outer end of the pier was sheathed. Expenditure, \$1,255.27 for construction; and \$496.25 for repairs.

HIGGINS' SHORE.

The pier at Higgins' Shore is in Egmont Bay, Prince County, and is situated about 10 miles to the north-west of Egmont Cape.

This is one of the piers built by the Local Government, the cost of which since Confederation has been repaid out of the appropriation of \$53,222.19 voted for that purpose at the Session of 1885. Since its assumption by the Dominion Government the filling which forms the roadway of the pier, and which had settled to such an extent as to be useless, has been made good. Expenditure, \$2,543.05 for construction; and \$180.20 for repairs.

HURD'S POINT.

Hurd's Point, Prince County, is situated on the south side of the Southern Arm of Summerside Harbour, about 13 miles south of Summerside.

The pier at this place is one of those built by the Local Government, and the expenditure on it since Confederation has been repaid out of the appropriation of \$53,222.19 voted at the Session of 1885 for that purpose. Since its assumption by the Dominion Government, such temporary repairs were made as rendered it available for fall shipments. On the 14th May, 1885, a contract was entered into with Mr. J. Geady for rebuilding the outer part or damaged portion of the pier and the construction of two blocks, each 50 feet long and 20 feet wide, placed on either side of the outer end, thus forming a pier-head, the contract price being \$3,145.00, and at the close of the fiscal year the work was well under way. The dredge "Prince Edward" worked at this place from the 1st of September, to 18th November, 1884, opening a channel to this wharf, which, when completed, will be 2,700 feet in length, 225 feet wide, and have a depth of 12 feet at low water. Expenditure, \$7,127.44 for construction; and \$169.41 for repairs.

KIER'S SHORE.

Kier's Shore is situated on the eastern side of Malpeque Bay, Prince County.

The pier at this place is one of those built by the Local Government which has been paid \$5,091.50 the amount expended on it since Confederation, out of the appropriation of \$53,222.19 made at the Session of 1885.

LAMBERT'S PIER.

This pier is at Montague Village, Lot No. 57, King's County, and is on the Montague River, 6 miles above its entrance into Cardigan Bay.

This is one of the piers built by the Local Government, the expenditure on which since Confederation has been repaid out of the appropriation of \$53,222.19 voted for that purpose at the Session of 1885. During the past year the whole of the extension has been entirely rebuilt with new materials, and such extensive repairs made to other portions of the work, that the pier, which had become useless, was made available for traffic. Expenditure, \$486.95 for construction; and \$1,303.51 for repairs.

LEWIS POINT.

Lewis Point Pier is in Lot No. 53, King's County, on the northern bank of Cardigan River, and 7 miles from North Cardigan Pier.

This is one of the piers built by the Local Government, the cost of which since Confederation has been repaid out of the appropriation of \$53,222.19 voted for that purpose at the Session of 1885. Since its assumption by the Dominion Government it has been strengthened and repaired and made fit for traffic. Expenditure, \$2,500.00 for construction; and \$164.43 for repairs.

MALPEQUE.

The harbour of Malpeque, in Prince County, lies within the eastern entrance of Richmond Bay, about 90 miles from East Point and 40 from Cape North.

The works referred to in last year's report were satisfactorily completed in July, 1884. Expenditure, \$82.50. Total expenditure at this place since Confederation, \$19,005.70.

MINK RIVER.

Mink River Pier is in Lot No. 63, King's County near the junction of Mink River with Murray Harbour.

This is one of the piers built by the Local Government, the cost of which since Confederation has been repaid out of the appropriation of \$53,222.19 voted for that purpose at the Session of 1885. Since its assumption by the Dominion Government, this pier, which was in a bad state of repair, was put in good order and rendered serviceable for the trade of the locality. Expenditure, \$293.25 for construction; and \$405.65 for repairs.

MONTAGUE.

Montague is in the County of King's, and is about 26 miles east of Charlottetown.

The unexpended appropriation for 1883-84 of \$5,000.00 for the erection of a Public Building to accommodate the Postal and other services was carried forward; and, a site was obtained from the estate of M. Lambert for the sum of \$800.00. At the close of the fiscal year plans and specifications for building on this site were being prepared, and since that date a contract has been let for the building. Expenditure during the fiscal year \$825.50, which is the only expenditure at this place since Confederation.

MURRAY HARBOUR—SOUTH RIVER.

Murray Harbour, in the County of King's, is situated at the south eastern end of the Island.

At the Session of 1884 the sum of \$1,250.00 was voted towards completing the straightening of the channel of South River; but up to the close of the fiscal year work had not been commenced.

McGEE'S.

McGee's Pier, Prince County, is situated on Egmont Bay, 5 miles to the northward of Egmont Cape.

This is one of the piers built by the Local Government, the cost of which since Confederation has been repaid out of the appropriation of \$53,222.19 voted for that purpose at the Session of 1885. Since its acquisition by the Dominion Government the roadway, which had settled in places has been made up, and the pier is now in good condition. Expenditure, \$2,721.25 for construction; and \$100.00 for repairs.

NINE MILE CREEK.

Nine Mile Creek is situated in Lot No. 65, Queen's County.

The pier at this place is one of those built by the Local Government, the cost of which since Confederation has been recouped out of the appropriation of \$53,222.19 voted at the Session of 1885 for that purpose. Expenditure, \$482.00.

NORTH CARDIGAN.

North Cardigan is in Lot No. 54, King's County, on the north side of Cardigan River, near its entrance into Cardigan Bay.

The pier at this place is one of those built by the Local Government, the cost of which since Confederation has been repaid out of the appropriation of \$53,222.19 voted for that purpose at the Session of 1885. Since its acquisition by the Dominion Government the fenders at the end and sides of the outer block of the pier have been renewed, and the faces protected by close piling; the covering has been repaired in places, and the roadway levelled up where uneven. Expenditure, \$2,732.70 for construction; and \$360.83 for repairs.

PINETTE.

Pinette is situated in Lot No 58, in Queen's County.

The pier at this place is one of those built by the Local Government, the cost of which since Confederation has been repaid out of the appropriation of \$53,222.19 made at the Session of 1885 for that purpose. Since assumption by the Dominion Government it has been repaired. Expenditure, \$1,814.00 for construction, and \$35.20 for repairs.

PORT SELKIRK.

Port Selkirk Pier is in Lot No. 57, Queen's County, and on the south side of Orwell River, near its entrance into Orwell Bay.

This is one of the piers built by the Local Government, the cost of which since Confederation has been repaid out of the appropriation of \$53,222.19 voted for that purpose at the Session of 1885. Since its assumption by the Dominion Government the repairs necessary to make the pier available for traffic have been executed. Expenditure, \$2,947.75 for construction; and \$607.63 for repairs.

POWNAL.

Pownal Pier is situated at the head of Pownal Bay, on Lot No. 49, Queen's County.

This is one of the piers built by the Local Government, the cost of which since Confederation, has been repaid out of the appropriation of \$53,222.19 voted for that purpose at the Session of 1885. Since its assumption by the Dominion Government necessary repairs have been made. Expenditure, \$3,429.92 for construction; and \$468.89 for repairs.

RED POINT.

Red Point Pier is in Queen's County, and is situated on the eastern side of the Hillsboro' River, about 6 miles north-east of Charlottetown.

The pier at this place which had become so dilapidated that its usefulness was gone, received general repairs and was put in a serviceable state. Expenditure, \$600.00 for construction.

SOUTH RIVER PIER.

South River Pier is at the head of navigation of the South River, Murray Harbour, on Lot No. 64, King's County.

This is one of the piers built by the Local Government, the cost of which since Confederation was repaid out of the appropriation of \$53,222.19 made for that purpose at the Session of 1885. Since its assumption by the Dominion Government some small repairs have been made. Expenditure, \$1,021.50 for construction; and \$49.50 for repairs.

SOUTH RUSTICO.

South Rustico Pier is in Queen's County, at the mouth of the Wheatley River, and is 13 miles north of Charlottetown.

This is one of the piers built by the Local Government, the cost of which since Confederation has been repaid out of the appropriation of \$53,222.19 voted for that purpose at the Session of 1885. Since its assumption by the Dominion Government, it has been repaired to enable the fall shipments to be made. Expenditure, \$657.80 for construction; and \$209.85 for repairs.

ST. MARY'S BAY.

St. Mary's Bay Pier is on Lot No. 61, King's County, on the south side of St. Mary's Bay.

This is one of the piers built by the Local Government, the cost of which since Confederation has been repaid out of the appropriation of \$53,222.19 voted for that purpose at the Session of 1885. Since its assumption by the Dominion Government, the pier, which was greatly out of repair, has been put in serviceable condition for fall shipments to be made from it. Expenditure, \$1,336.59 for construction; and \$341.25 for repairs.

ST. PETER'S BAY.

St. Peter's Bay is in King's County on the northern coast of the island, 35 miles eastward of East Point.

At the Session of 1884 the sum of \$3,000.00 was voted towards the completion of the works mentioned in last year's report as having been abandoned by the contractor; but up to the close of the fiscal year nothing has been done. Total expenditure at this place since Confederation, \$8,207.16.

SUMMERSIDE.

Summerside, Prince County, is the principal seaport in the western end of Prince Edward Island, and is the objective point for the steamer plying from Shediac, N.B., in connection with the Intercolonial Railway.

HARBOUR.

The dredge "Prince Edward" was at work in the harbour from the commencement of the fiscal year to the 1st September, deepening the water at the "Queen's Wharf," the work done consisting of an approach 552 feet in length, 204 feet in width, and 13 feet deep at low water, from deep water in the harbour to the end of the wharf. On the east side a cut 544 feet in length and 85 feet wide, was made, and on the west side a cut 231 feet in length and 81 feet in width, both 12 feet in depth at low water. Expenditure, \$2,072.56.

PUBLIC BUILDING.

At the Session of 1884 the sum of \$12,500.00 was voted towards the completion of this building, a full description of which appeared in last year's report, which

sum added to the unexpended balance of appropriation for 1883-84, \$6,971.50 carried forward, made a total of \$19,471.50 available. On 26th March, 1885, a contract was entered into with Messrs. McKinnon & McLean, for hot water heating apparatus, for the sum of \$1,187.00, and the contract is being carried out. During the year such progress has been made with the building that it is expected to be completed and occupied by the close of the calendar year. Expenditure during the fiscal year, \$12,752.89. Total expenditure on this building since Confederation, \$15,623.89.

TIGNISH.

Tignish is situated at the mouth of the Big Tignish River, Prince County, about 8 miles east of North Point.

At the Session of 1884 the sum of \$4,000.00 was voted towards further work on the breakwater at this place commenced by the Local Government, prior to Confederation, and since extended by the Department. On the 27th November, 1884, a contract was entered into with J. H. Myrick for the sum of \$4,125.00 for the extension of the present breastwork, a distance of 1,875 feet, to meet the high land and prevent the sea breaking through the beach; also for 440 feet of brush and stone slope on the north face of the northern breakwater, and raising and re-filling 100 feet of the existing brush and stone slope, and at the close of the fiscal year the work was fairly under way. Expenditure, \$135.26 for construction; and \$102.70 for repairs. Total expenditure at this place since Confederation, \$24,102.49.

VERNON RIVER.

Vernon River Pier is on Lot No. 50, Queen's County, 2 miles above the entrance of the river into Orwell Bay.

This is one of the piers built by the Local Government, the cost of which since Confederation has been repaid out of the appropriation of \$53,222.19 voted for that purpose at the Session of 1885. Since its assumption by the Dominion Government the pier has been levelled up and necessary repairs made. Expenditure, \$908.66 for construction; and \$249.90 for repairs.

VICTORIA PIER (WOOD ISLANDS).

Wood Islands are in Queen's County, on the south coast of the island, about 35 miles south-east from Charlottetown.

With the unexpended balance of appropriation for 1883-84 carried forward, the works mentioned in last report as in progress were completed early in the fiscal year. Expenditure, \$907.90. Total expenditure at this place since Confederation, \$10,789.36.

WEST POINT.

West Point is situated in Lot No. 8, Prince County.

The breakwater at this place is one of those built by the Local Government, the cost of which since Confederation has been repaid out of the appropriation of \$53,222.19 voted for the purpose at the Session of 1885. Expenditure, \$4,226.40

PROVINCE OF NEW BRUNSWICK.

ANDERSON'S HOLLOW (ROCHER BAY).

In Albert County, on the eastern side of Salisbury Bay, between Cape Enragé and Matthew's Head, on the northern side of the Chignecto Channel, the north-western arm of the Bay of Fundy.

At the Session of 1884 the sum of \$2,000.00 was voted for the purpose of continuing the work of connecting with the shore the isolated block, 100 by 25 feet, built by the Department in 1879-80. On 15th December, 1884, a contract was entered into with Messrs. Wallace and Steeves for an extension shorewards of 100 feet, for the sum of \$1,600.00 ; and at the close of the fiscal year the work was almost completed. Expenditure, \$921.49. Total expenditure at this place since Confederation, \$7,703.99.

BATHURST.

Bathurst, the shire town of Gloucester County, is on Bathurst Bay, which opens into the Baie des Chaleurs, and is about 175 miles from St. John's.

At the Session of 1884 the sum of \$6,000.00 was voted towards the construction of a building suitable for the Customs, Postal and other offices ; and on the 26th November, 1884, a contract was entered into with Mr. John Black, for the

sum of \$18,325.00. The building is situated at the corner of Water and Douglas streets. The main portion has a frontage of 47 feet by a depth of 37 feet, two stories high, with a basement and attic, and a one-story annex, 16 by 60 feet, for Examining Warehouse and Weights and Measures Offices. The outside walls are of a local red sandstone, with cut stone dressings, and the rear building is faced with red brick. The design of the main building is bold, the details being of the most simple character. The windows and door openings have semi-circular heads. A large stone dormer adds to the effect of the main frontage, and a low tower on the east side, in which are four clock faces, renders the outline pleasing. The basement will be used for heating and storage; the ground floor for the Post Office; the first floor for Custom House, Inland Revenue, Savings Bank and Pilot Commissioners; and the attic for Caretaker's apartments. Expenditure during the year, \$1,189.25. Total expenditure on this building, \$2,260.20.

BUCTOUCHE.

Buctouche, in the County of Kent, is situated on the river of the same name which empties into the Strait of Northumberland, about 20 miles north-west of Shediac.

At the Session of 1884 the sum of \$1,000.00 was voted towards the completion of the wharf at this place, which was mentioned in last year's report as being under contract; and at the Session of 1885 the further sum of \$655.00 was granted for the same purpose. During the year the wharf has been finished, and has a depth of from 10 to 15 feet along its front at low water. Expenditure, \$1,655.00. Total expenditure, \$3,715.55.

CAPE TORMENTINE.

Cape Tormentine is situated on the Strait of Northumberland, and is the point from which the crossing to Prince Edward Island is generally made during the winter.

HARBOUR.

At the Session of 1884 the sum of \$150,000.00 was voted towards the construction of harbour works at Cape Tormentine, or in its vicinity, to afford suitable wharf accommodation in connection with the terminus of the New Brunswick and Prince Edward Island Railways. During the summer of 1884 a survey was made at a cost of \$4,419.63, but nothing further had been done up to the close of the fiscal year.

WINTER CROSSING.

At the Session of 1885 the sum of \$2,000.00 was voted towards providing boat houses at Capes Traverse, P.E.I., and Tormentine, N.B., to be used in connection with the winter mail service between Prince Edward Island and the mainland. At the close of the fiscal year the buildings were nearly completed, and have since been finished and fitted up so that they may be used during the coming winter. Expenditure \$2,021.02.

CARAQUETTE.

In Gloucester County, on the southern shore of the Baie des Chaleurs, about 42 miles to the east of Bathurst.

At the Session of 1884 the sum of \$500.00 was granted toward the completion of the extension to the pier built by the Local Government, mentioned in last year's report, and the work has been finished. Expenditure, \$211.50. Total expenditure on this work, \$4,471.54.

CARLETON.

Carleton, in the County of St. John, is situated on the western side of St. John Harbour.

POST OFFICE.

At the Session of 1884 the sum of \$6,000.00 was voted for the purpose of fitting up and furnishing this building, a full description of which will be found in my report for 1882-83. On the 7th July, 1884, a contract for the fitting up of the building for the sum of \$642.70, was entered into with Messrs. Causey, Bond & Mildén, and during the fiscal year the building was occupied. Expenditure during the fiscal year, \$2,967.25. Total expenditure on this building, \$13,629.59.

RAILWAY ACCOMMODATION.

At the Session of 1884 the sum of \$10,000.00 was voted for the purpose of providing extended railway wharf accommodation to this place, but up to the close of the fiscal year no action has been taken

CHATHAM.

Chatham, in the County of Northumberland, is situated on the Miramichi River, about 12 miles above its mouth.

During the fiscal year the small sum of \$21.30 was expended on repairs to the Public Building used by the Postal, Customs and other Departments. Total expenditure, \$13,781.77 for construction, and \$4,793.93 for repairs.

DORCHESTER.

Dorchester, the shire town of Westmoreland County, is situated on the left bank of the Petitcodiac River, near its entrance into Shepody Bay.

At the Session of 1884 the further sum of \$25,000.00 was voted towards the completion of the new cell-wing to the Penitentiary, mentioned in last year's report as being under contract; and the unexpended balance of appropriation for 1883-84, \$4,500.23, was carried forward. During the summer of 1884 the walls of the cell-wing were carried up to the third tier of cells; and in the spring of 1885 work was resumed and carried on with sufficient rapidity to enable the building to be roofed in before the close of the season. A new blacksmith shop, a shingle mill, dry houses, &c., have been built, and a number of other works carried out during the fiscal year, a full description of which will be found in Appendix No. 2, pp. 26, 27. Expenditure during the fiscal year, \$33,894.69. Total expenditure on this building, \$413,345.19 for construction; and \$120.00 for repairs.

FREDERICTON.

The Capital of the Province, is situated in the County of York, on the River St. John, about 60 miles from the City of St. John.

MILITARY SCHOOL.

During the year the alterations to the Barracks to adapt them to the uses of the School of Infantry Instruction, mentioned in last year's report as being in progress, have been completed and the building occupied. Expenditure, \$1,954.63. Total expenditure on these buildings, \$14,738.56.

POST OFFICE.

During the fiscal year some small repairs have been made, at a cost of \$122.75. Total expenditure on this building, \$30,521.57 for construction; and \$544.89 for repairs.

HILLSBORO'.

In Albert County, on the west bank of the Petitcodiac River, about 14 miles below Moncton.

During the fiscal year the pier which was built by the Department in 1874 was raised 4 feet, re-ballasted, covered with 3-inch plank, and the outer end, and 20 feet on each side, close fendered. Expenditure, \$749.06. Total expenditure at this place since Confederation, \$3,749.06.

HOPEWELL CAPE.

Hopewell Cape, in Albert County, is on the western side of the Petitcodiac River, 7 miles below Hillsboro', and 7 miles above Grindstone Island, at the mouth of the river.

At the Session of 1884 the sum of \$4,000.00 was voted towards the extension of the ballast wharf at this place, a portion of which was mentioned in last report as being under contract. During the year the first section of 380 feet has been completed, and on 5th March, 1885, a contract was entered into with Mr. G. W. Steeves for an extension of 200 feet, for the sum of \$3,500.00, which work was in progress at the close of the fiscal year, and has been completed since. Expenditure during the year, \$311.41. Total expenditure at this place since Confederation, \$3,523.58.

MADAWASKA RIVER.

The Madawaska River flows from Lake Temiscouata and it empties into the St. John at Edmundston, the shire town of Madawaska County.

At the Session of 1884 the sum of \$1,000.00 was voted for the improvement of this river, and a spur dam has been built on the east side of the Little Falls for the purpose of increasing the volume of water over the falls. Expenditure, \$600.00. Total expenditure on this river, \$3,236.85.

MIRAMICHI RIVER.

The Miramichi, one of the largest rivers in New Brunswick, empties into the Gulf of the St. Lawrence, in the County of Northumberland.

The dredge "St. Lawrence" operated on the "Horse Shoe Shoal," and at the "Grand Dune" at the mouth of this river from 1st July to 27th September, 1884. At the former place a cut was made across the bar, 900 feet in length by 200 feet wide, and having a depth of from 20 to 21 feet at low water, where 16 to 17 previously existed. At the "Grand Dune," a cut was made 1,080 feet in length, 140 feet wide, and the depth of water increased from 17 to 22 feet. Expenditure, \$9,248.68. Total expenditure on dredging this river since Confederation, \$58,748.47.

MISPEC.

In St. John County, is situated at the mouth of Mispéc Stream, about 10 miles to the eastward of the City of St. John.

At the Session of 1884 the sum of \$3,000.00 was voted towards the completion of the breakwater, which was referred to in last year's report as being under contract, and at the Session of 1885 the further grant of \$2,650.00 was made, which sums added to \$1,174.79 carried forward from 1883-84 made a total of \$6,824.79 available. The contract was completed in January last. Expenditure during the fiscal year, \$6,742.50. Total expenditure at this place since Confederation, \$9,567.71.

MONCTON.

Moncton, Westmoreland County, is situated at the head of navigation of the Petitcodiac River, and is 80 miles from St. John by Intercolonial Railway.

At the Session of 1884 a further grant of \$20,000.00 was made towards the erection of the Public Building to accomodate the Postal, Custom and other services, a full description of which appeared in last year's report, and the sum of \$4,243.70 unexpended balance of appropriation for 1883-84 was carried forward. On 11th April, 1885, a contract for heating apparatus was entered into with Messrs. Wisdom & Fish for the sum of \$1,482.96. Work was steadily prosecuted, and at the close of the fiscal year it was expected that the building would be ready for occupation in the autumn. Expenditure during the fiscal year, \$17,662.92. Total expenditure on this building \$26,805.61.

NEWCASTLE.

Newcastle, the shire town of Northumberland County, is situated on the left bank of the Miramichi River, about 18 miles from its entrance into Miramichi Bay.

At the Session of 1884 the sum of \$7,000.00 was voted towards the erection of a building to accommodate the Postal, Customs and other services, on the site at the corner of Water and Henry streets, mentioned in last year's report as having been purchased, and at the Session of 1885 the further sum of \$3,000.00 was granted, which sums added to \$3,799.87 carried forward from 1883-84 made a total of \$13,799.87 available. On 6th August, 1884, a contract was entered into with Messrs. McDonald & Treen, for the erection of the building for the sum of \$31,250.00, and at the close of the fiscal year the work was well advanced. The main building has a frontage of 51 feet on Water street by a depth of 47 feet on Henry street, and is two stories high, with basement and attic; and in the rear reaching along Henry street to King street is a one-story extension, 44 feet long with a mean width of 26 feet for Examining Warehouse and Weights and Measures Offices. The building is being erected of native sandstone in random coursed work, with quoins, plinths, string courses, window dressings and dormer windows of cut stone from the same quarry. The basement is for the furnace room, fuel room and water tank; the ground floor for the Post Office; first floor for Customs and Inland Revenue Offices, and the attic for Caretaker's apartments. Expenditure during the fiscal year, \$11,814.99. Total expenditure on this building, \$15,015.12.

PORTLAND.

Portland is situated in the County of St. John, and adjoins the City of St. John.

During the fiscal year the sum of \$228.30 was spent on some alterations to the building mentioned in last year's report as having been purchased for Post Office purposes. Total expenditure, \$9,331.10.

RICHIBUCTO.

In the County of Kent, on the Strait of Northumberland, 40 miles north of Shediac Harbour.

At the Session of 1884 the sum of \$3,300.00 was voted for the purpose of extending the protection works at this place, and during the year they have been extended a further distance of 250 feet. The inner end of the breakwater was close piled for a distance of 180 feet, and the brush and stone filling in the body of the work was made good in places where it had settled. Expenditure during fiscal year, \$3,300.00. Total expenditure at this place since Confederation, \$43,746.77.

RIVER ST. JOHN.

The St. John River rises in the highlands which separate Maine from Canada, and for part of its course forms the boundary between Canada and the United States.

At the Session of 1884 the sum of \$2,000.00 was voted for the improvement of this river between Rivière des Chutes and Bear Island; \$1,000.00 for the section between Bear Island and Fredericton, and \$3,000 for the improvement of the Tobique and St. John Rivers above Grand Falls. During the fiscal year the following works have been performed: The channel of the Lower Jemseg was improved at Vanwart's Wharf and opposite Never's Island, and a depth of 12 feet obtained; on the Oromocto Shoal a cut of 2,180 feet in length, 50 feet wide and 12 feet deep was made; at St. Mary's and Gibson, opposite Fredericton, cuts were made from the main channel to the public wharves; above Fredericton the channel was improved by the removal of stone and boulders; on the Tobique River improvements were made to the channel at the Nictaux, Forbes' Island, Horse Island and Haley's Brook Bar; rock in place was removed from Tilley's Rapids, and the towpath between Salmon River and Grand Falls repaired; on the south-western side of the falls a high projecting cliff, which caused an eddy in which timber was caught and remained, was partially removed; between Grand Falls and the St. Francis, repairs were made to the towpath, and numbers of large boulders removed from the channel. Expenditure during the fiscal year, \$12,379.90. Total expenditure on the improvement of this river (including the Tobique) since Confederation, \$75,589.72.

ST. JOHN.

St. John, the commercial metropolis of the Province, is situated at the mouth of the St. John River.

BARRACKS.

The small sum of \$20.00 was spent on repairs. Total expenditure since Confederation, \$416.78 for repairs.

CUSTOM HOUSE.

Necessary repairs were made during the year. Expenditure, \$810.18. Total expenditure on this building, \$321,293.99 for construction; and \$2,781.76 for repairs.

FORT DUFFERIN.

With the unexpended balance of appropriation for 1883-84 carried forward, the work of constructing a further length of retaining wall mentioned in last

year's report as being under contract has been completed. Expenditure during the fiscal year, \$1,650.00. Total expenditure at this place since Confederation, \$8,038.74 for construction, and \$48.34 for repairs.

HARBOUR.

At the Session of 1884 the further sum of \$40,000.00 was voted to continue the work on Negro Point Breakwater, referred to in last year's report. In November the works were suspended on account of the contractors being unable to proceed further with them; and since the close of the fiscal year a new contract has been let for their completion. The dredge "St. Lawrence" worked in the harbour from 26th December, 1884, to 15th April, 1885, and again from 18th June to the close of the fiscal year, during which time she removed a large portion of the "tail" of Navy Island bar, increasing the depth of water from 4 to 15 feet; opened a deep water berth at the Long Wharf, at the head of the harbour; made a cut 90 feet in length, 25 feet wide, and 16 feet deep at low water in front of the public wharf at Indiantown, and deepened the channel to Murray's Mills. Expenditure during the fiscal year on the breakwater, \$19,775.42, and on dredging, \$4,042.24. Total expenditure since Confederation, \$348,376.72 on breakwater; and \$49,661.75 on dredging.

MARINE HOSPITAL.

At the Session of 1884 the sum of \$12,000.00 was voted towards the completion of this building, which added to \$3,487.94 unexpended balance of appropriation for 1883-84 carried forward, made a total of \$15,487.94 available. During the fiscal year the works referred to in last report have been carried out, and the building is now ready for occupation. Expenditure, \$13,809.36. Total expenditure on this building \$47,090.61.

MILITARY BUILDINGS.

During the year the sum of \$36.60 was spent on necessary repairs to these buildings. Total expenditure since Confederation, \$9,150.87. for construction, and \$1,205.45 for repairs.

PENITENTIARY.

The small sum of \$7.50 was spent for repairs. Total expenditure since Confederation, \$3,767.59 for repairs.

POST OFFICE.

During the year some further alterations and repairs have been made to this building at a cost of \$1,001.89. Total expenditure, \$174,508.78 for construction; and \$2,775.04 for repairs.

SAVINGS BANK.

The small sum of \$1.55 was spent for repairs. Total expenditure on this building \$45,022.03 for construction; and \$1,309.89 for repairs.

ST. MARY'S.

In the County of Kent, is situated on the Big Buctouche River, about 7 miles above the Village of Buctouche.

The wharf referred to in my last report was completed early in the fiscal year. Expenditure, \$214.22. Total expenditure on this work, \$1,714.22.

ST. STEPHEN.

St. Stephen, in Charlotte County, is situated at the head of navigation of the St. Croix River, which forms part of the boundary between New Brunswick and the United States.

At the Session of 1884 the sum of \$7,000.00 was voted towards the erection of a building to accommodate the Postal, Customs and other services, on the lot mentioned in last year's report as having been purchased for the purpose. Plans and specifications were prepared by the Department and tenders invited; and, on 1st June, 1885, a contract was entered into with Mr. John MacPherson for the erection of the building for the sum of \$14,700.00, but work had not been commenced at the close of the fiscal year. The main building will have a frontage of 61 feet on Water street by a depth of 32 feet, and be two storeys high, with basement and attic; built of brick, with plinth, string courses, and dressings of cut stone, floors and roof of wood, the latter covered with slate and galvanized iron. There will be an annex, one story and basement, for Bonded and Examining Warehouse. The basement of the main building will be for fuel and furnace rooms, &c.; ground floor for Post Office; first floor for Customs and Inland Revenue Offices, and the attic for the Caretaker. Expenditure during the fiscal year, \$205.48. Total expenditure, \$3,324.94.

SUSSEX.

With the unexpended balance of appropriation for 1883-84 carried forward, the building intended to accommodate the Postal, Customs and other services was completed. Expenditure during the fiscal year, \$438.18. Total expenditure, \$23,325.26 for construction, and \$11.00 for repairs.

WEST ISLES.

The Parish of West Isles comprises all the islands to the westward of Campo Bello in Passamaquoddy Bay, Charlotte County.

At the Session of 1884 the sum of \$600.00 was granted for the removal of the rocky ledge which obstructed the passage between Deer and Hardwood Islands, and during the year the work has been done so that boats can now pass through. Expenditure, \$600.00, which is the only expenditure at this place since Confederation.

WOODSTOCK.

Woodstock is the shire town of the County of Carleton, and is situated on the left bank of the St. John River.

At the Session of 1884 the sum of \$12,000.00 was voted for the completion of the building to accommodate the Postal, Customs and other services, a full description of which appeared in my report of 1882-83. On 30th January, 1885, a contract was entered into with Messrs. Wisdom & Fish, for heating apparatus, for the sum of \$1,750.00; and on 11th May, 1885, with Mr. J. Limerick, for the internal fittings for the sum of \$1,000.00. Since my last report it has been decided to add a clock tower, which was placed on the apex of the main roof, and adds to the appearance of the building. At the close of the fiscal year the building was almost completed, and it was expected that occupation would take place this autumn. Expenditure, \$9,005.63. Total expenditure, \$29,311.09.

PROVINCE OF QUEBEC.

ANSE A L'EAU.

On the north-east side of the Saguenay River, in the County of Saguenay, about two miles above Tadoussac.

The sum of \$271.26 was spent in repairing the wharf at this place, built a few years ago to accommodate the steamers plying between Quebec and Chicoutimi.

ANSE ST. JEAN.

On the south-west shore of the River Saguenay, about 25 miles from its mouth, in the County of Chicoutimi.

Slight repairs were made to the pier and freight shed at this place. Expenditure, \$94.45. Total expenditure since Confederation, \$6,775.90.

BAGOTVILLE (ST. ALPHONSE).

St. Alphonse de Bagotville is in the County of Chicoutimi, at the head of Ha! Ha! Bay, River Saguenay.

At the Session of 1884 the sum of \$3,500.00 was voted to continue the repairs to this pier, and during the year it has been raised from 2 to 3 feet over its whole length, a movable slip has been placed in position, and a shed 80 by 66 feet erected. Expenditure, \$4,680.55. Total expenditure since Confederation, \$21,760.61.

BAIE ST. PAUL.

In the County of Charlevoix, on the north shore of the St. Lawrence, 60 miles below Quebec.

At the Session of 1884 the further sum of \$5,000.00 was granted towards the completion of the pier at Pointe Rouge, Cap aux Corbeaux, mentioned in last report as being under construction, and early in the year the work was finished. Expenditure, \$4,958.78. Total expenditure on this work since Confederation, \$35,933.71.

BERTHIER (EN BAS).

In the County of Bellechasse, on the south shore of the St. Lawrence, 24½ miles below Quebec.

At the Session of 1884 the sum of \$4,500.00 was voted towards the extension of this pier mentioned in last year's report as being under contract, and at the Session of 1885 a further grant of \$6,500.00 was made. During the year the work has been completed. Expenditure, \$10,492.90. Total expenditure since Confederation, \$20,039.98.

BIC.

In the County of Rimouski, on the south shore of the St. Lawrence, 170 miles below Quebec.

At the Session of 1884 the sum of \$2,500.00 was voted towards the construction of the wharf at this place, mentioned in last year's report as being under contract, at the Session of 1885 the further sum of \$5,000.00 was granted, and the unexpended balance of appropriation for 1883-84, \$4,773.59, was carried forward, so that the total amount available was \$12,273.59. Construction was commenced in September, 1884, and actively carried on to the close of the fiscal year. Expenditure, \$9,888.67. Total expenditure at this place since Confederation, \$10,115.08.

CHAMBLY.

On the Richelieu River, in the County of Chambly, and about 15 miles from Montreal, by the South-Eastern Railway.

During the fiscal year some further repairs were made to the historic old fort, a full description of which will be found in last year's report. Expenditure, \$1,317.30. Total expenditure on this fort since Confederation, \$4,990.16.

CHATEAU RICHER.

In the County of Montmorency, on the north shore of the St. Lawrence, 15 miles below Quebec.

At the Session of 1884 the sum of \$3,000.00 was voted for the purpose of removing a quantity of boulders lying between high and low water marks, opposite the wharves, and during the year the work has been carried out. Expenditure, \$2,952.37, which is the only expenditure at this place since Confederation.

CHENAL DU MOINE (ST. ANNE DE SOREL).

Chenal du Moine, or Monk's Channel, is one of the channels of the St. Lawrence and is on the south side of the river in the County of Richelieu, about three miles below Sorel.

At the Session of 1884 the sum of \$1,200.00 was voted for the construction of of an ice pier at St. Anne de Sorel, at the entrance to Monk's Channel ; and during the year the pier has been built, at a cost of \$1,176.53. At the Session of 1885 the sum of \$1,000.00 was voted towards repairing the four ice-piers built some years ago to protect the low lying lands on the south side, during the breaking up of the ice. The repairs had scarcely been begun at the close of the fiscal year, but have since been finished. These piers have fully answered the purpose for which they were constituted and have proved of great use during the breaking up of the ice. Total expenditure since Confederation, \$6,678.08.

CHICOUTIMI.

In the County of Chicoutimi, on the south side of the River Saguenay, at the head of navigation, and $71\frac{1}{2}$ miles from Tadoussac.

MARINE HOSPITAL.

At the Session of 1884 the sum of \$3,700.00 was voted towards the completion of this building, and at the Session of 1885 a further grant of \$1,350.00 was made, which sums added to the unexpended balance of appropriation for 1883-84, \$1,748.68, made a total of \$6,798.68 available. A contract for outbuildings, &c., was entered into with Mr. W. Warren for the sum of \$4,034.50, and at the close of the fiscal year the greater part of the works were finished. Expenditure, \$5,766.22. Total expenditure on the building, \$16,903.95.

PIER.

During the year the work of filling in between the head of this pier and the shore, and the building of a shed for passengers and freight, referred to in my last report, has been completed. Expenditure \$2,042.11. Total expenditure on this pier since Confederation, \$21,356.14.

ETANG DU NORD.

In the County of Gaspé, situated at the western end of Grindstone Island, one of the Magdalen Group, Gulf of St. Lawrence.

At the Session of 1884 the sum of \$6,000.00 was voted to repair the works at this place, which were mentioned in last year's report as having been seriously injured. It being found on examination that the damage to the works was so extensive that it would be impossible to repair them so as to make them serviceable, the site was changed, and a breakwater was commenced at a point to the

south of Isle aux Goélans, and at the close of the year the work was well under way. Expenditure during the fiscal year, \$6,000.00. Total expenditure at this place since Confederation, \$40,978.41.

FLINT'S (LAKE MEGANTIC).

During the year a small wharf has been built at this place to accommodate the trade of the locality. Expenditure, \$1,712.41, which is the only expenditure at this place since Confederation.

GROSSE ILE.

An island in the St. Lawrence, about 33 miles below Quebec, in the County of Montmagny.

At the Session of 1885 the sum of \$3,300.00 was voted for the purpose of making general repairs to the quarantine buildings at this place, and the works were in progress at the close of the fiscal year. Expenditure, \$1,968.55. Total expenditure on these buildings since Confederation, \$58,671.79.

HARBOURS AND RIVERS GENERALLY.

At the Session of 1884 the sum of \$10,000.00 was voted for repairs, &c., to harbours and rivers generally in the Province of Quebec, and at the Session of 1885 an additional sum of \$4,000.00 was granted. Expenditure during the year, \$11,843.90.

HULL.

The chief city in the County of Ottawa, situated on the Ottawa River opposite the City of Ottawa, with which it is connected by the Union Suspension Bridge.

At the Session of 1884 the sum of \$4,000.00 was voted for the purpose of adding a tower to this building, fencing, grading, &c. Work was only commenced towards the close of the fiscal year, but has since been proceeded with. Expenditure, \$150.00 for construction, and \$56.50 for repairs.

ILE AUX GRUES.

Ile aux Grues, or Crane Island, is in the County of Montmagny, opposite Cape St. Ignace, on the south side of the St. Lawrence, 30 miles below Quebec.

At the Session of 1884 the sum of \$5,000.00 was voted towards continuing the work, mentioned in last year's report as being under contract, of connecting with the shore the isolated block on which the lighthouse stands, and at the Session of 1885 a further grant of \$4,000.00 was made. During the fiscal year the work has been completed. Expenditure, \$8,702.54. Total expenditure at this place since Confederation, \$21,564.44.

LANORAIE.

In the County of Berthier, on the north shore of the St. Lawrence, 46 miles north-east of Montreal.

At the Session of 1884 the sum of \$4,000.00 was voted towards the construction of the pier at this place, mentioned in last report as being under contract, and at the Session of 1885 a further grant of \$817.62 was made. During the year the contract has been completed. Expenditure, \$4,823.86. Total expenditure at this place since Confederation, \$5,032.01.

LAPRAIRIE.

Laprairie, the *chef-lieu* of the County of the same name, is on the southern shore of the St. Lawrence, 7 miles above Montreal.

The dredge "Canada," mentioned in my last report as being at work at this place at the close of the fiscal year 1883-84, continued operations during the summer of 1884 completing the work of deepening the berths around the public wharf, and the channel leading therefrom to the main channel of the St. Lawrence, to 7 feet at low water. Expenditure, \$2,303.03. Total expenditure at this place since Confederation, \$11,284.04.

LES EBOULEMENTS.

In the County of Charlevoix, on the north shore of the St. Lawrence, about 69 miles below Quebec.

At the Session of 1884 the sum of \$2,200.00 was voted for the improvement of the pier at this place; and during the year a triangular block was built inside the north-east wing of the wharf, a movable slip erected and the flooring repaired where required. Expenditure, \$2,198.56. Total expenditure at this place since Confederation, \$18,397.52.

LEVIS.

Levis, the *chef lieu* of the county of the same name, is situated on the south shore of the St. Lawrence, immediately opposite the City of Quebec.

FORTIFICATIONS.

The small sum of \$40.00 was spent in repairs. Total expenditure on these works since Confederation, \$13,215.30 for construction; and \$24,091.39 for repairs.

IMMIGRANT BUILDINGS.

At the Session of 1884 the sum of \$15,000.00 was voted towards the erection of buildings to replace those destroyed by fire on 3rd June, 1882. Up to the close of the fiscal year no action had been taken.

LONGUE POINTE AND BOUCHERVILLE FERRY.

At the Session of 1884, the sum of \$500.00 was voted for the purpose of dredging the ferry channel from Longue Pointe, in the County of Hochelaga, on the north side of the St. Lawrence, to Boucherville, in the County of Chambly, on the south shore; but up to the close of the fiscal year nothing had been done and no expenditure had taken place. Total expenditure on the work since Confederation, \$11,393.37.

MALBAIE.

Malbaie, or Murray Bay, is in the County of Charlevoix, on the north shore of the St. Lawrence, 84 miles below Quebec.

The pier at this place received considerable damage during the storm of November, 1884, and temporary repairs were at once made to enable passengers and freight to be landed. Since the close of the fiscal year the pier has been put in good order. Expenditure during the fiscal year, \$157.57. Total expenditure since Confederation, \$19,641.78.

MATANE.

In the County of Rimouski, on the south shore of the St. Lawrence, about 240 miles below Quebec.

During the year improvements were made to the cribs forming the pier at this place, which have been closed to prevent the sand from being washed into the channel. Expenditure, \$540.97. Total expenditure since Confederation, \$21,170.95.

MONTREAL.

Montreal, the largest city in Canada, is situated at the head of ocean navigation of the St. Lawrence, and is the principal port of imports and exports in the Dominion.

ASSISTANT RECEIVER-GENERAL'S OFFICE.

At the Session of 1884 the sum of \$2,650.00 was voted for the purpose of providing an additional safe for this office, and during the year the safe has been supplied. Expenditure, \$2,667.87.

CHAMP DE MARS.

The extensive improvements to this place, which were mentioned in last year's report as being in progress, have been completed. Expenditure during the fiscal year, \$5,130.21. Total expenditure since Confederation, \$5,261.96.

CUSTOM HOUSE.

At the Session of 1884 the sum of \$600.00 was voted for the purpose of building a small office at the Lachine Canal; and the sum of \$1,500.00 for general repairs was included in the vote of \$4,000.00 for Dominion Buildings, Montreal. During the year necessary alterations and repairs have been made. Expenditure \$2,316.79 for construction; and \$321.27 for repairs. Total expenditure on the building, \$239,007.50 for construction; and \$47,270.93 for repairs.

DRILL HALL AND ARMOURIES.

At the Session of 1884 the sum of \$27,000.00 was voted towards the erection of these buildings. A further grant of \$13,000.00 was made at the Session of 1885 and the unexpended balance from appropriation for 1883-84, \$15,595.87, was carried forward, so that the whole amount available was \$55,595.87. A description of the Drill Hall appeared in last year's report, and the building is now completed. The walls of the old Armouries adjoining the hall, and which it had been intended to utilize, were found to be in so unsafe a condition that they had to be taken down; and on 25th August, 1884, a contract was entered into with Messrs. J.

St. Louis & Bro. for removing the old armouries and putting in foundations for new ones on the same site, for the sum of \$12,702.00, and the work was completed before the close of the fiscal year, since which date a contract has been let for the construction of the superstructure. Expenditure during the fiscal year, \$11,510.00 on the foundations for the Armouries, and \$40,080.80 on the Drill Hall. Total expenditure on these buildings, \$92,276.13.

EXAMINING WAREHOUSE.

At the Session of 1884 the further sum of \$28,000.00 was voted towards completing the work of substituting wrought rolled iron beams and brick arches for the wooden floors in this building, and erecting a one-story addition for the storage of heavy goods, mentioned in last year's report as being under contract. At the Session of 1885 an additional grant of \$7,000.00 was made, and the sum of \$16,942.43 was carried forward, so that the whole amount available was \$51,942.43. On 4th August 1884, a contract was entered into with Mr. George Brush for altering the position of the hoist for the sum of \$330.00. During the year all the works have been completed. Expenditure \$69,686.73 for construction, and \$365.85 for repairs. Total expenditure on this building, \$324,304.44 for construction; and \$17,521.64 for repairs.

IMMIGRANT BUILDING.

At the Session of 1884 the sum of \$15,000.00 was re-voted towards providing additional accommodation for immigrants at Montreal; but up to the close of the fiscal year nothing had been done, and no expenditure had taken place.

INLAND REVENUE BUILDING.

In the vote of \$4,000.00 for Dominion Buildings, Montreal, passed at the Session of 1884, was the sum of \$450.00 for general repairs to this building, and during the year the sum of \$413.88 has been expended for that purpose. Total expenditure on this building, \$49,603.87 for construction; and \$9,019.03 for repairs.

POST OFFICE.

At the Session of 1884 the sum of \$5,000.00 was voted to continue the alterations and repairs mentioned in last year's report as being in progress; and during the year they have been completed. Since that time it has been decided to change the manner of lighting this building, and to substitute the Edison incandescent system of electric lighting for gas, by which it is expected that a saving of about \$1,000.00 a year will be effected. Expenditure during the fiscal year \$6,636.87 for construction, and \$630.05 for repairs. Total expenditure on this building, \$523,047.89 for construction; and \$8,752.62 for repairs.

NEW CARLISLE.

New Carlisle, the *chef-lieu* of Bonaventure County, is on the north shore of the Baie des Chaleurs, 65 miles below Campbellton, N.B.

At the Session of 1884 the sum of \$3,000.00 was voted to continue the work on this pier which was mentioned in last year's report as being in progress. The heavy gale of 5th November, 1884, did considerable damage to this pier, and much of the ballast was washed out. This was replaced and the work put in safety for the winter. Expenditure during the fiscal year, \$3,398.33. Total expenditure since Confederation, \$27,618.41.

NEWPORT RIVER.

The Newport River is in the County of Gaspé, and empties into the Baie des Chaleurs, about 88 miles below Campbellton, N. B.

At the Session of 1884 the sum of \$1,000.00 was voted for the construction of protection works at the mouth of this river. On 28th January, 1885, a contract was entered into with Messrs. St. Laurent & Grenier, for timber for the work, and part of it was delivered before the close of the fiscal year. Expenditure, \$609.31. Total expenditure at this place, \$617.01.

PERCÉ.

In the County of Gaspé, on the north shore and at the entrance to the Baie des Chaleurs.

At the Session of 1884 the sum of \$5,000.00 was voted towards the construction of a pier at this place; but up to the close of the fiscal year work had not been commenced.

PORT DANIEL.

In the County of Bonaventure, on the north shore of the Baie des Chaleurs about 75 miles below Campbellton, N.B.

At the Session of 1884 the sum of \$6,000.00 was re-voted towards the continuation of a landing pier, the Municipality having agreed to furnish the timber; but up to the close of the fiscal year no action had been taken, and there had been no expenditure.

QUEBEC.

Quebec, the Capital of the Province of the same name, is situated on the north shore of the St. Lawrence at its confluence with the St. Charles, 160 miles below Montreal.

CITADEL.

The unexpended balance of appropriation for 1883-84, \$2,579.49, was carried forward, and the works referred to in last year's report completed. Expenditure during the fiscal year, \$5,044.16. Total expenditure on these works, \$58,689.28.

CITADEL BUILDINGS.

During the fiscal year some further necessary repairs were made to these buildings at a cost of \$1,668.61. Total expenditure since Confederation, \$6,428.60 for construction; and \$70,239.95 for repairs.

CLERK OF WORKS OFFICE.

The small sum of \$27.00 was spent for repairs during the fiscal year.

CULLER'S OFFICE.

During the fiscal year the sum of \$100.00 was spent on necessary repairs. Total expenditure since Confederation, \$3,316.56 for repairs.

CUSTOM HOUSE.

During the fiscal year some necessary repairs were made at a cost of \$388.60. Total expenditure on this building, \$303,488.41 for construction; and \$21,385.13 for repairs.

DRILL HALL.

At the Session of 1884 the sum of \$15,000.00 was voted towards the construction of this building, a full description of which appeared in last year's report, and the unexpended balance of 1883-84 appropriation, \$12,657.29 and the amounts granted by the Local Government and the Corporation of Quebec, \$15,000 each, were carried forward, so that the whole amount available was \$57,617.29. During the year considerable progress has been made in construction. Expenditure, \$27,566.75. Total expenditure on this building, \$28,154.57.

EXAMINING WAREHOUSE.

At the Session of 1884 the further sum of \$30,000.00 was voted towards the construction of this building, and during the fiscal year the building has been completed. On 12th May, 1885, a contract was entered into with Messrs. Carrier, Gagné & Co. for the construction of an engine, boiler and hoist; and at the close of the fiscal year plans for steam heating apparatus in connection with above-

mentioned boiler were being prepared, and since that date a contract has been entered into. Expenditure during fiscal year, \$27,878.65. Total expenditure on this building, \$56,697.78.

FORTIFICATIONS.

The works referred to in last year's report as being in progress have been completed. Expenditure during the fiscal year, \$332.00. Total expenditure on these works, \$142,493.46 for construction; and \$97,231.37 for repairs.

INLAND REVENUE BUILDING.

The small sum of \$28.00 was spent for repairs.

MARINE HOSPITAL.

The alterations mentioned in last report have been completed, and some necessary repairs made. Expenditure, \$900.40 for construction, and \$349.00 for repairs. Total expenditure on this building, \$168,401.65 for construction; and \$12,582.80 for repairs.

MARINE HOSPITAL WHARVES.

At the Session of 1884 the further sum of \$1,500.00 was voted to continue the repairs mentioned in last report as being in progress; and during the fiscal year the eastern pier has been raised 3 feet. Expenditure, \$1,650.14. Total expenditure since Confederation, \$6,988.63.

POST OFFICE.

Some small repairs were made during the year at a cost of \$182.31. Total expenditure on this building, \$95,418.93 for construction; and \$14,327.88 for repairs.

QUEEN'S WHARF.

At the Session of 1884 the sum of \$4,000.00 was voted towards the work of re-building the face of this wharf, mentioned in last year's report as being under contract. At the Session of 1885 a further grant of \$5,250.00 was made, and the unexpended balance of appropriation for, 1883-84, \$4,009.15, was carried forward so that the whole amount available was \$13,259.15. The work was completed in November, 1884. Expenditure during the fiscal year, \$13,013.12. Total expenditure at this place since Confederation, \$13,203.97.

SIGNAL SERVICE INSPECTOR'S OFFICE.

During the fiscal year the sum of \$469.50 was spent on necessary repairs on this building.

RIMOUSKI.

The town of Rimouski is the *chef lieu* of the county of the same name, and is on the south shore of the St. Lawrence, 179 miles below Quebec. The wharf is the point where the English mails are embarked and disembarked during the summer, and is connected by railway with the main line of the Intercolonial.

During the season of 1884 the dredge "Canada" was employed in deepening the water on either side of the wharf and at its head, a depth of 10 feet at low water having been obtained. Expenditure, \$3,997.59. Total expenditure at this place since Confederation, \$6,613.59.

RIVER A LA GRAISSE (RIGAUD).

This river flows through the County of Vaudreuil, emptying into the Ottawa on its southern shore, about 45 miles above Montreal. The town of Rigaud is situated about three miles up the river.

The dredge "Nipissing" operated in deepening the channel of this river to 6 feet, between the 1st July and 9th August, 1884, and the dredge "Queen" between the 28th May and 30th June, 1885, removing 34,691 cubic yards of clay, stone and gravel. Expenditure, \$1,594.56. Total expenditure at this place since Confederation, \$10,653.82.

RIVER BATISCAN.

In the County of Champlain. Empties into the St. Lawrence on its northern shore, about 57 miles above Quebec.

The dredging of a channel at the mouth of this river, referred to in last year's report, has been completed. Expenditure during the fiscal year, \$998.20. Total expenditure at this place since Confederation, \$2,998.17.

RIVER BLANCHE.

The River Blanche flows through the County of Rimouski, and empties into the south side of the St. Lawrence, 9 miles above Matane, and about 25 miles east of Métis.

During the year, the sum of \$221.00 was spent on repairs to the pier at this place. Total expenditure since Confederation, \$12,666.06.

RIVER BRAS ST. NICHOLAS.

This river is in the County of Montmagny and empties into the River du Sud, at the town of St. Thomas de Montmagny, 35 miles below Quebec.

At the Session of 1884, the sum of \$1,200.00 was voted for the purpose of opening a channel through the shoal of gravel and boulders which had accumulated at the Intercolonial Railway bridge. The work was done during the fall of 1884, and the result has been that the overflow of the river in the spring of 1885, was greatly diminished. Expenditure, \$1,220.56, which is the only expenditure at this place since Confederation.

RIVER DU LIÈVRE.

The River du Lièvre empties into the Ottawa River on its north shore, in the County of Ottawa, about 16 miles below Ottawa.

At the Session of 1884 the sum of \$6,000.00 was voted for the purpose of carrying on the improvements to the navigation of this river, mentioned in last report as being in progress, and during the fiscal year some further work has been done. Expenditure, \$2,291.55. Total expenditure on this river since Confederation, \$8,024.10.

RIVER DU LOUP (EN BAS).

The River du Loup flows through the County of Témiscouata, and empties into the south side of the St. Lawrence, about 114 miles below Quebec.

At the Session of 1884 the sum of \$14,000.00 was voted for the purpose of completing the extension of the pier at this place 100 feet, mentioned in last year's report as being under contract; and during the fiscal year the work has been finished. This pier was, however, severely damaged by the ice in the spring of 1885, necessitating extensive repairs which are now in progress. Expenditure during the fiscal year, \$14,060.76. Total expenditure since Confederation, \$41,303.73.

RIVER NICOLET.

The River Nicolet, in the County of Nicolet, flows into the St. Lawrence on its southern shore, at the foot of Lake St. Peter.

At the Session of 1884 the further sum of \$9,000.00 was voted towards continuing the work of constructing a harbour of refuge at the mouth of the river. During the fiscal year a navigable channel has been opened through the flats in Lake St. Peter to the wharves in the river, and 850 feet of pile protection work completed. Expenditure, \$17,116.28. Total expenditure since Confederation, \$59,180.68.

RIVER NOIRE.

The River Noire is a tributary of the River Nicolet, and flows through the County of Arthabaska.

At the Session of 1884 the sum of \$1,000.00 was voted towards the improvement of the river; and during the fiscal year the banks have been cleared of alders, and the river itself of dead trees and boulders, for a distance of five miles. Several gravel shoals were also deepened. Expenditure, \$999.93, which is the only expenditure at this place since Confederation.

RIVER OTTAWA.

The River Ottawa flows from Lake Temiscamingue and falls into the St. Lawrence at Ste. Anne de Bellevue, forming for a great part of its length, the boundary between Ontario and Quebec.

At the Session of 1884, the sum of \$3,000.00 was voted to continue the work of deepening the channel between Bristol and Clarendon, Pontiac County, and during the year the work has been carried on. Expenditure \$2,707.73. Total expenditure on this work since confederation \$7,760.28.

RIVER OUELLE.

This river is in the County of Kamouraska and empties into the St. Lawrence on its southern shore, 75 miles below Quebec.

At the Session of 1884 the sum of \$1,500.00 was granted towards the raising of the outer end of the pier at this place, referred to in last year's report; and during the fiscal year the work has been continued. Expenditure, \$1,699.75. Total expenditure on this pier since Confederation, \$21,594.96.

RIVER PABOS.

The River Pabos flows through the County of Gaspé, and empties into the Baie des Chaleurs on its northern shore, about 30 miles west of Percé.

During the year a quantity of boulders and rock was removed from the channel leading to the harbour of Grand Pabos. The work was difficult on account of the swiftness of the current and its exposed position. Expenditure, \$1,070.79, which is the only expenditure at the place since Confederation.

RIVER RICHELIEU.

The Richelieu flows from Lake Champlain to the St. Lawrence, about 80 miles, and passes through the Counties of St. John, Iberville, Chambly, Verchères, St. Hyacinthe and Richelieu.

The dredge "Nipissing" operated on the shoal opposite St. Charles, in the County of St. Hyacinthe, from the 14th August to 21st October, deepening the channel to 8 feet at low water, removing 22,125 cubic yards of clay, gravel and boulders. Expenditure, \$2,315.95. Total expenditure on dredging this river since Confederation, \$50,213.26.

RIVER SAGUENAY.

The River Saguenay rises in Lake St. John and flows through the Counties of Chicoutimi and Saguenay, emptying into the St. Lawrence at Tadousac.

CHANNEL BELOW CHICOUTIMI.

At the Session of 1884 the sum of \$4,500.00 was voted to continue the work of improving the channel of the river below Chicoutimi, and during the fiscal year 932 cubic yards of boulders were taken out, and 2,475 cubic yards of sand and gravel dredged. Expenditure, \$4,494.61. Total expenditure on the work since Confederation, \$30,127.94.

LA GRANDE DÉCHARGE.

The work of improving this outlet of Lake St. John into the River Saguenay, referred to in last year's report, has been partly finished. Expenditure, \$364.32. Total expenditure at this place since Confederation, \$13,791.99.

RIVER STE. ANNE DE BEAUPRÉ.

This river is in the County of Montmorency, and empties into the St. Lawrence, on the north shore, 22 miles below Quebec.

To facilitate the descent of timber, two small dams have been built, one at St. Férèol and the other at St. Joachim Chute. Expenditure, \$1,726.99, which is the only expenditure at this place since Confederation.

RIVER ST. FRANCIS.

The River St. Francis rises in the County of Wolfe, and after a course of about 100 miles, empties into Lake St. Peter, on its southern shore.

During the summer of 1884 some dredging was done on the large shoal which obstructs the mouth of this river. Expenditure, \$1,440.96. Total expenditure since Confederation, \$25,744.16.

RIVER ST. LAWRENCE.

At the Session of 1884 the sum of \$5,000.00 was voted to continue the work of removing boulders, chains, &c., from this river, and the unexpended balance of appropriation for 1883-84, \$1,502.07, was carried forward. During the year the lifting barge, specially constructed for the service in 1874-75, was at work in the harbour of Quebec. Expenditure, \$7,051.45. Total expenditure on this work, \$115,392.50, including cost of lifting barge (\$35,000.00).

RIVER ST. LOUIS.

This river flows eastwardly through the County of Beauharnois, and empties into the St. Lawrence at Beauharnois.

At the Session of 1884 the further sum of \$5,000.00 was voted towards continuing the work of deepening the feeder of this river from Lake St. Francis, and during the year good progress has been made. Expenditure, \$1,894.05. Total expenditure on this river since Confederation \$14,326.94.

RIVER ST. MAURICE.

This river rises near the height of land dividing Quebec from the North-West Territories, and after a course of about 450 miles through the Counties of Champlain and St. Maurice, falls into the St. Lawrence at Three Rivers.

During the year dredging was done in the east channel of the river, and 3,077 cubic yards of clay removed. A number of boulders and other obstructions were removed between the Forges Rapids and the Gabelle. Expenditure, \$1,049.55.

RIVER YAMACHICHE.

The River Yamachiche flows southerly through the County of St. Maurice, and empties into Lake St. Peter, about 16 miles above Three Rivers.

A land slide having taken place where this river crosses the western boundary of the Parish of Shawenegan, causing the water in the river to be dammed back, thus flooding the adjacent lands, a cut was made, 6 to 8 feet wide and from 5 to 10 feet deep, through the obstruction, giving partial relief. Expenditure, \$999.92. Total expenditure on this river since Confederation, \$3,999.92.

RIVER YAMASKA.

The River Yamaska is in the County of the same name, and empties from the south into the head of Lake St. Peter.

At the Session of 1884 the further sum of \$15,000.00 was voted towards the completion of the lock and dam at Isle à Cardin, mentioned in last year's report. At the Session of 1885 an additional grant of \$9,544.80 was made, and the unexpended balance of appropriation for 1883-84, \$9,544.80, was carried forward, so that the whole amount available was \$34,089.60. The original contractors, Messrs. Gaherty, Brecken & Davis, having abandoned the work, new tenders were called for, and on 3rd July, 1884, a contract was entered into with Messrs.

McCannon & Cameron for the completion of the work for the sum of \$26,667.00, and at the close of the fiscal year the work was virtually done. Expenditure, \$34,230.27. Total expenditure at this place since Confederation, \$70,001.73.

SAULT AU COCHON.

Sault au Cochon is in the County of Charlevoix, on the north shore of the St. Lawrence, about 20 miles above Baie St. Paul.

At the Session of 1885 the sum of \$4,000.00 was voted towards the construction of an isolated block, 100 by 30 feet, at this place. On 11th August, 1884, a contract was entered into with Mr. George Tanguay for the construction of the block, and during the fiscal year the work has been completed. Expenditure, \$4,029.61. Total expenditure at this place since Confederation, \$4,494.41.

SHERBROOKE.

Sherbrooke, the chief town in the county of the same name, is situated on the Magog River, 101 miles east of Montreal, by the Grand Trunk Railway.

At the Session of 1884 the further sum of \$20,000.00 was voted for the completion of the building intended to accommodate the Postal, Customs and other services, a full description of which appeared in the Annual Report for 1881-82; and the building is now finished, fitted up, supplied with hot-water heating apparatus and occupied. Contracts were entered into as follows: On 2nd December, 1884, with Messrs. Garth & Co., for heating apparatus, for the sum of \$1,632.00; on the 19th December, 1884, with G. G. Bryant, for fittings, \$1,297.00; and on 15th April, 1885, with S. Twose, for furniture, \$1,039.60; and since the close of the fiscal year a contract has been entered into for grading, retaining walls and stone steps. Expenditure, \$17,424.04. Total expenditure on this building, \$58,122.25.

SOREL.

Sorel, the *chef-lieu* of the County of Richelieu, is situated on the right bank of the Richelieu River at its confluence with the St. Lawrence, 45 miles below Montreal.

At the Session of 1884 the sum of \$10,000.00 was voted towards the construction of a building to accommodate the Postal, Customs and other services, on the site

at the corner of Prince and George streets, mentioned in last year's report as having been ceded to the Crown, free of cost, by the Corporation of Sorel, and the unexpended balance of appropriation for 1883-84, \$3,697.39, was carried forward, making the whole amount available, \$13,697.39. Plans and specifications for the building were prepared by the Department and tenders called for, and on 24th of July, 1884, a contract was entered into with Mr. George Beaucage for the construction of the building for the sum of \$24,750.00. The work has been vigorously prosecuted during the fiscal year, and the building was roofed in before the close of the building season. The building is of limestone, random coursed, with cut limestone dressings, two stories high, with a basement and attic. It has a frontage of 72 feet each on Prince and George streets, the main portion having a depth of 36 feet. A full description of the building will be found in Appendix No. 2, page 30. Expenditure during the fiscal year, \$13,267.34. Total expenditure, \$13,569.95.

ST. AGNES.

St. Agnes (late Morinville) is situated at the mouth of the Chaudière River, which empties into Lake Mégantic in the County of Beauce, 69 miles from Sherbrooke.

During the year some slight repairs were made to the pier built at this place by the Department. Expenditure, \$103.50. Total expenditure at this place since Confederation, \$5,980.28.

STE. ANNE DE BELLEVUE.

In the County of Jacques Cartier, at the confluence of the Rivers Ottawa and St. Lawrence, 21 miles west of Montreal, by the Grand Trunk Railway.

At the Session of 1884 the sum of \$4,750.00 was voted for the purpose of building a wharf at this place, and on 9th May, 1885, a contract was entered into with Messrs. Gobier & Dagenais for its construction for the sum of \$4,150.00. On 28th May, 1885, the dredge "Nipissing" commenced excavating for the foundation of the wharf and worked until 17th June, removing 1,457 cubic yards of hard pan and boulders. Expenditure for dredging, \$480.16, and on wharf, \$298.90. Total expenditure at this place since Confederation, \$779.06.

STE. ANNE DE LA POCATIÈRE.

Ste. Anne de la Pocatière is on the south shore of the St. Lawrence, 70 miles below Quebec, in the County of Kamouraska.

At the Session of 1884 the sum of \$3,400.00 was voted towards the construction of a pier at this place, and in October, 1884, work was commenced and prosecuted until the appropriation was exhausted. A further grant having been made for the current year, the work is being continued. Expenditure during the fiscal year, \$3,399.97, which is the only expenditure at this place since Confederation.

ST. FRANÇOIS (ILE D'ORLÉANS).

St. François is situated at the extreme eastern end of the Island of Orleans, about 21 miles below Quebec, in the County of Montmorency.

At the Session of 1884 the sum of \$4,000.00 was voted to continue work on the pier at this place, which was mentioned in my last report, and during the fiscal year an additional block of solid crib-work 90 feet in length has been built, and the spaces between the blocks composing the pier have been timbered up to one foot above high water mark. Expenditure, \$4,148.80. Total expenditure at this place since Confederation, \$14,375.63.

ST. JEAN (ILE D'ORLEANS.)

St. Jean is situated on the south-east side of the Island of Orleans, in the County of Montmorency.

At the Session of 1884 the sum of \$3,000.00 was voted towards the purchase of the pier at this place built by the municipality some years ago, and on which the Department of Marine and Fisheries constructed a lighthouse in 1874, and the unexpended balance of appropriation for 1883-84, \$5,939.45, was carried forward, making the whole amount available, \$8,939.45. On 28th October, 1884, the pier was sold to the Government by the Municipality for the sum of \$8,000.00. Total expenditure of Department Public Works since Confederation, \$8,714.94.

ST. JOHN'S.

St. John's, the *chef-lieu* of the county of the same name, is situated on the Richelieu River, 27 miles from Montreal by railway.

BARRACKS.

The alterations to these buildings to fit them for an Infantry School have been completed. Expenditure during the fiscal year, \$635.53. Total expenditure on these buildings since Confederation, \$15,450.42.

PUBLIC BUILDING.

The small sum of \$3.65 was spent on repairs during the year. Total expenditure on this building, \$16,224.21 for construction; and \$297.60 for repairs.

ST. RÉGIS.

St. Régis is situated on the south shore of the St. Lawrence, in the County of Huntingdon, 6 miles from Cornwall, Ont.

During the year the sum of \$43.84 was expended for repairs to the Custom house. Total expenditure on this building since Confederation, \$216.75 for repairs.

ST. THOMAS DE MONTMAGNY.

In the County of Montmagny, on the south shore of the St. Lawrence, 35 miles below Quebec.

During the year the roadway leading to the pier and the breakwater protecting it were repaired. Expenditure, \$862.76. Total expenditure at this place since Confederation, \$6,619.72.

ST. VINCENT DE PAUL.

St. Vincent de Paul is situated on the River des Prairies, in the County of Laval, 13 miles from Montreal.

At the Session of 1884 the sum of \$44,200.00 was voted to continue the works referred to in last year's report as being in progress at the Penitentiary, and the unexpended balance of appropriation for 1883-84, \$17,542.78, was carried forward, so that the whole amount available was \$61,742.78. During the year the main sewer and dining hall have been completed, the keeper's hall, 60 feet by 60 feet, commenced and carried up 20 feet; three wooden sheds, each 30 by 20 feet, built and other work done. On 25th July, 1884, a contract was entered into with Messrs. Villeneuve & Co. for firewood for the sum of \$2,812.50; and,

on 20th April, 1885, a contract was entered into with Mr. A. Desrosier for an organ for the chapel, the price being \$2,200.00. Expenditure during the fiscal year, \$28,037.90. Total expenditure on this building since Confederation, \$250,674.18 for construction; and \$120.00 for repairs.

ST. ZOTIQUE.

St. Zotique is in the County of Soulanges, at the foot of Lake St. Francis, 3 miles from Coteau Landing.

At the Session of 1884 the sum of \$1,250.00 was voted for the purpose of completing the connection with the shore of the isolated block referred to in last year's report, and of building ice piers to protect the work. During the year the wharf was completed and the construction of the ice piers commenced. Expenditure, \$1,290.31. Total expenditure at this place since Confederation, \$10,548.98.

THREE RIVERS.

The City of Three Rivers which forms the Electoral District of the same name, is situated at the head of tide water in the St. Lawrence, 72 miles above Quebec.

CUSTOM HOUSE.

The alterations to the Barracks to fit them for Custom House and Inland Revenue Offices have been completed. Expenditure during the fiscal year, \$500.00 for construction; and \$288.38 for repairs. Total expenditure on this building since Confederation, \$17,641.24 for construction; and \$2,154.99 for repairs.

POST OFFICE.

At the Session of 1884 the sum of \$3,550.00 was voted for the completion of the conversion of the Old Custom House into a Post Office, and during the year the building has been finished, fitted up, furnished and occupied. On 8th December, 1884, a contract was entered into with the Hydro-Caloric Association for heating apparatus for the sum of \$832.00, and the contract has been carried out. Expenditure during the fiscal year, \$8,208.46 for construction; and \$320.00 for repairs. Total expenditure on this building since Confederation, \$25,195.34 for construction; and \$1,605.91 for repairs.

TROIS PISTOLES.

Trois Pistoles is in the County of Témiscouata, on the south shore of the St. Lawrence, 148 miles below Quebec.

At the Session of 1884 the sum of \$1,750.00 was voted towards the completion of the pier at this place, mentioned in last year's report as being under construction. During the year the damages done by the ice in the spring of 1884 were repaired, and the unfinished portions of the work completed. The severe storm of November, 1884, caused much damage, the approach being washed away and other mischief done. Expenditure, \$1,741.19. Total expenditure since Confederation, \$9,297.90.

PROVINCE OF ONTARIO

AMHERSTBURG.

Amherstburg, in the Electoral District of South Essex, is situated on the Detroit River, five miles above its junction with Lake Erie, and is the western terminus of the Canada Southern Railway.

At the Session of 1884 the sum of \$16,000.00 was voted towards the completion of the Public Building to accommodate the Postal, Customs and other services, a full description of which appeared in last year's report. On 8th June, 1885, a contract was entered into with Mr. P. Navin for internal fittings, for the sum of \$1,600.00; and at the close of the fiscal year the building was so far advanced that it was expected it would be completed and occupied before the close of the calendar year. Expenditure during the fiscal year, \$14,698.75. Total expenditure on the building, \$23,712.43.

BARRIE.

Barrie, in the Electoral District of North Simcoe, is situated on Kempenfelt Bay, an arm of Lake Simcoe, 60 miles north of Toronto.

At the Session of 1884 the sum of \$16,000.00 was voted to continue the construction of the Public Building to accommodate the Postal, Customs and other services, a full description of which appeared in last year's report. Work has steadily progressed on the building, and it is expected that it will be finished

during the current fiscal year. Plans and specifications for hot water apparatus were being prepared at the close of last fiscal year. Expenditure, \$14,924.01. Total expenditure of this building, \$19,340.17.

BAYFIELD.

Bayfield is in the Electoral District of South Huron, on the east shore of Lake Huron, 12 miles south of Goderich.

At the Session of 1884 the sum of \$4,000.00 was voted for repairs to the old pier at this place, and during the year the northern side of the harbour, from the entrance, was close-piled and a small channel opened to enable fishermen to pass their boats in and out. Expenditure, \$4,007.00. Total expenditure at this place since Confederation, \$66,049.37.

BELLE RIVER.

Belle River flows through the County of Essex and empties into Lake St. Clair midway between the mouths of the Thames and Detroit Rivers.

During the year the works referred to in my last report were completed. Expenditure, \$1,170.00. Total expenditure at this place since Confederation, \$3,302.50.

BELLEVILLE.

Belleville is in the Electoral District of West Hastings, at the mouth of the River Moira, which empties into the Bay of Quinté, 43 miles west of Kingston.

HARBOUR.

With the amount contributed by the Municipality, \$4,000.00, the dredging referred to in my last report was continued from 1st July to 13th August, 1884, resulting in the removal of 6,650 cubic yards of hard-pan, stones and boulders. Expenditure, \$3,154.50. Total expenditure at this place since Confederation, \$0,858.66.

PUBLIC BUILDING.

At the Session of 1884 the sum of \$2,200.00 was voted for the purpose of finishing the Caretaker's quarters in the attic, and placing iron crestings on

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the roof, and during the year these works have been carried out. Expenditure, \$1,893.93 for construction; and \$92.85 for repairs. Total expenditure on this building, \$61,677.31 for construction; and \$143.30 for repairs.

BERLIN.

Berlin, in the Electoral District of North Waterloo, is situated on the Grand River, and is 62 miles from Toronto by Grand Trunk Railway.

At the Session of 1884 the sum of \$15,000.00 was voted towards the construction of the Public Building at this place for the accommodation of the Customs, Postal and other services, which was fully described in last year's report, and the unexpended balance of appropriation for 1883-84, \$4,315.33, was carried forward, so that the total amount available was \$19,315.33. On 20th April, 1885, a contract for heating apparatus was entered into with Mr. Adam Clark for the sum \$1,482.96; and during the fiscal year work has been prosecuted in such a manner that it is expected the building will be completed and occupied before the close of the calendar year. Expenditure during the fiscal year, \$16,530.63. Total expenditure on this building, \$20,235.30.

BRANTFORD.

Brantford, in the Electoral District of South Brant, is situated on the Grand River, which empties into Lake Erie.

During the fiscal year some slight alterations and repairs were made to the Public Building at this place at a cost of \$262.00 for construction; and \$184.65 for repairs. Total expenditure on this building, \$33,034.48 for construction; and \$2,360.11 for repairs.

BROCKVILLE.

Brockville, the chief town of the United Counties of Leeds and Grenville, is situated at the foot of the Lake of a Thousand Islands, on the north shore of the St. Lawrence, 125 miles from Montreal.

At the Session of 1884 the sum of \$22,500.00 was voted towards the completion of the Public Building for the accommodation of the Postal, Customs and other offices, a full description of which will be found in my report for 1883.

On the 16th March, 1885, a contract was entered into with Messrs. J. J. Blackmore, & Co. for heating apparatus for the sum of \$1,850.00; and, on 4th April, 1885, a contract was awarded to Mr. John S. Mix for the interior fittings for the sum of \$1,938.00. Progress on this building has been rather slow; but, it is expected that it will be completed and occupied before the close of the calendar year. Expenditure during the fiscal year, \$17,073.92. Total expenditure on this building, \$38,873.34.

CHATHAM.

Chatham, the chief town in the County of Kent, is situated on the River Thames, and is 67 miles south-west of London by Great Western Railway.

At the Session of 1884 the sum \$15,000.00 was voted for fitting up, furnishing, &c., the Public Building at this place for the accommodation of the Postal, Customs and other services, a full description of which will be found in my report for 1882-83, and the building has been completed and occupied. Expenditure during the fiscal year, \$9,510.30 for construction; and \$78.86 for repairs. Total expenditure on this building, \$57,551.59 for construction; and \$78.86 for repairs.

CLIFTON.

Clifton, or Niagara Falls, is in the County of Welland, and is situated on the west bank of the Niagara River, 12 miles from St. Catharines.

At the Session of 1884 the sum of \$12,000.00 was voted towards the completion of the Public Building at this place to accommodate the Customs, Postal and other offices, and at the Session of 1885 a further grant of \$2,500.00 was made for the same purpose. On 21st January, 1885, a contract for heating apparatus was entered into with Messrs. Charles Garth & Co. for the sum of \$1,760.00; and on 3rd March, 1885, an agreement was made with Mr. J. E. Askwith to do the interior fittings for the sum of \$500.00. During the fiscal year the building has been completed and occupied. Expenditure \$18,467.24. Total expenditure on this building, \$38,525.14.

COBOURG.

Cobourg, in the Electoral District of West Northumberland, is situated on the north shore of Lake Ontario, 96 miles west of Kingston.

HARBOUR.

At the Session of 1884 the sum of \$24,000.00 was voted to continue the harbour works mentioned in last year's report as being in progress; and, in October, 1884, Mr. Dinwoodie completed his contract. Considerable settlement has taken place in this work, and the superstructure has been built up. Expenditure during the fiscal year, \$22,825.93. Total expenditure at this place since Confederation \$139,687.62.

PUBLIC BUILDING.

At the Session of 1884 the sum of \$2,000.00 was voted towards altering the building mentioned in my report of 1882-83 as having been purchased for the accommodation of the Postal, Customs and other services, and at the Session of 1884 a further grant of \$3,000.00 was made. On 11th July, 1884, a contract for fitting for Post Office was entered into with Mr. W. Battell, for the sum of \$1,735.00; and the alterations are so far advanced that it is expected the Post Office portion of the building will be completed before the close of the calendar year. Expenditure during the fiscal year, \$5,178.37. Total expenditure on this building, \$17,621.53.

COLLINGWOOD.

Collingwood, in the Electoral District of North Simcoe, is situated on the south shore of Lake Huron, 94 miles from Toronto by railway.

At the Session of 1884 the further sum of \$24,000.00 was granted towards continuing the harbour works, referred to in last year's report as being under contract, and in October, 1884, the work was completed. On 10th March, 1885, contract for building the final length of the breakwater was entered into with M. E. Murphy for the sum of \$19,000.00, and at the close of the fiscal year the work was under way. The breakwater at the entrance to the harbour being damaged a contract was entered into 17th December, 1884, with Mr. D. Fleming for repairs for the sum of \$4,214.71, and the work has been done. Expenditure during the fiscal year, \$26,931.10. Total expenditure on this harbour since Confederation, \$166,302.24, including \$28,268.26 spent by the Northern Railway Company 1874-75.

CORNWALL.

Cornwall, the chief town in the Electoral District of Cornwall and Stormont, is situated on the St. Lawrence River, 67 miles west of Montreal by Grand Trunk Railway.

At the Session of 1884 the sum of \$10,000.00 was voted towards the completion of the Public Building intended to accommodate the Postal, Customs and other services, a description of which will be found in my report for 1882-83, and at the Session of 1885 a further grant of \$2,500.00 was made for the same purpose. On 13th of November, 1884, a contract was entered into with Mr. Charles Garth & Co., for heating apparatus for the sum of \$1,575.00; and, on 22nd April, 1885, a contract for interior fittings was let to Mr. Lewis A. Ross for the sum of \$1,300.00. During the fiscal year the building was completed, the heating apparatus put in and the fitting and furnishing so far advanced that the building was occupied in the autumn. Expenditure during the fiscal year, \$15,377.13. Total expenditure on this building, \$54,853.86.

GALT.

Galt, in the Electoral District of South Waterloo, is situated on the Grand River, 25 miles north-west of Hamilton.

At the Session of 1884, the sum of \$10,000.00 was voted towards the construction of a Public Building to accommodate the Postal, Customs and other services on the site mentioned in last year's report as having been deeded to the Crown for that purpose by the Corporation of Galt, free of charge. On the 15th November, 1884, a contract was entered into with Mr. M. A. Piggott for the erection of the building for the sum of \$21,000.00, and at the close of the fiscal year the work was well under way. The main building has a frontage of 51 feet by a depth of 39 feet, and comprises a basement, two stories and an attic. The walls are faced externally with random coursed stone of the neighbourhood, with cut stone dressings from Guelph. The floors and roof are of wood, the latter covered with galvanized iron and slate. At the north end is a square tower, with pyramidal roof, and having four clock dials. A one-story annex will be used as the Examining Warehouse. The basement of the main building will be used for bonded goods, Weights and Measures Office, heating apparatus and fuel; the Post Office will be on the ground floor; Customs and Inland Revenue Offices on the first floor, and the Caretaker's apartment in the attic. Vaults will be provided on the ground and first floors for the various Departments. Expenditure during the fiscal year, \$2,427.10. Total expenditure on this building, \$2,601.15.

GANANOQUE.

Gananoque, in the Electoral District of South Leeds, is situated at the mouth of the Gananoque River, which empties into the St. Lawrence, about 20 miles north-east of Kingston.

At the Session of 1884 the sum of \$2,000.00 was voted for the purpose of placing a hot-water heating apparatus in the Custom House at this place, a description of which will be found in my report for 1882-83. On 9th August, 1884, a contract was entered into with Messrs. Garth & Co. for heating apparatus for the sum of \$992.50, and during the fiscal year the apparatus has been put in. Expenditure during fiscal year, \$1,701.89. Total expenditure on this building, \$14,414.47.

GODERICH.

Goderich, in the Electoral District of West Huron, is situated at the mouth of the River Maitland, which flows into Lake Huron, 68 miles north of Sarnia.

The dredge "Challenge" was engaged from 28th May to 15th June, 1885, in removing, to a depth of 16 feet, the point of the shoal which extends across the mouth of the harbour. Quantity of material dredged, 1,675 cubic yards of sand. Expenditure during the fiscal year, \$1,540.20. Total expenditure at this place since Confederation, \$509,391.43, including \$10,000.00 contributed by the Township of Goderich in 1875.

GUELPH.

Guelph, in the Electoral District of South Wellington, is situated on the River Speed, and is about 48 miles from Toronto by Grand Trunk Railway.

During the fiscal year the sum of \$56.40 has been expended in alterations and repairs to the Public Building at the place. Total expenditure on this building, \$31,689.77 for construction ; and \$1,746.80 for repairs.

HAMILTON.

The city of Hamilton, comprising an Electoral District returning two members is in the County of Wentworth, on Burlington Bay, at the western extremity of Lake Ontario.

At the Session of 1884 the sum of \$60,000.00 was voted to continue work on the building, intended to accommodate the Postal, Customs and other services, full description of which will be found in my Report of 1882-83, and the unexpended balance of appropriation for 1883-84, \$6,651.35, was carried forward. On 10th January, 1885, a contract for heating apparatus was entered into with Messrs.

J. J. Blackmore & Co. for the sum of \$5,800.00, and the apparatus was being put in at the close of the fiscal year, at which time drawings were in course of preparation for the internal fittings of the building. Expenditure during the fiscal year, \$70,093.52. Total expenditure on this building, \$231,409.06.

HARBORS AND RIVERS GENERALLY, ONTARIO.

At the Session of 1884 the usual vote of \$8,000.00 was made for maintenance of harbours and rivers in Ontario; and during the fiscal year the sum of \$3,872.46 was expended.

KINCARDINE.

Kincardine, in the Electoral District of West Bruce, is situated at the mouth of the River Penetangore, which empties into Lake Huron, 31 miles north of Goderich.

At the Session of 1884 the sum of \$3,000.00 was voted for the purpose of continuing the repairs to the breakwaters at this place mentioned in last year's report as being in progress; and during the year the south pier has been built up, repaired and strengthened where necessary. Expenditure, \$3,069.38. Total expenditure at this place since Confederation, \$93,090.58.

KINGSTON.

Kingston, in the Electoral District of the same name, is situated at the eastern end of Lake Ontario, 172 miles west of Montreal.

CUSTOM HOUSE.

During the fiscal year some small repairs were made to this building at a cost of \$22.45. Total expenditure since Confederation, \$41,805.52 for construction; and \$8,281.20 for repairs.

HARBOUR.

At the Session of 1884 the sum of \$7,000.00 was voted for the purpose of continuing the work of removing the top of Point Frederick shoal so as to give 15 feet depth of water; and during the year 5,392 cubic yards of rock were taken out. Expenditure, \$7,694.96. Total expenditure on this harbour since Confederation, \$36,986.98.

IMMIGRANT BUILDING.

During the fiscal year the sum of \$639.20 has been spent on necessary repairs to this building. Total expenditure since Confederation, \$4,024.68 for construction, and \$958.24 for repairs.

PENITENTIARY.

At the Session of 1884 the sum of \$8,000.00 was voted for the purpose of completing the west wharf and carrying on other works mentioned in last year's report, and the unexpended balance of appropriation for 1883-84, \$3,707.58 was carried forward. During the year the improvements in the heating and water service, which have been referred to in previous reports as being in progress, were completed, the re-construction of the west wharf finished, a gasometer pit built, a kitchen and pantry added to the Deputy Warden's quarters, and other works done, a full description of which will be found in Appendix No. 2, page 33. Expenditure during fiscal year, \$10,305.74. Total expenditure on this building, \$299,202.69 for construction; and \$17,654.79 for repairs.

POST OFFICE.

At the Session of 1884 the sum of \$3,500.00 was voted for the purpose of putting a heating apparatus in this building, and completing the alterations referred to in last year's report. On 9th August, 1884, a contract was entered into with Mr. S. Jenkins, for altering the fittings for the sum of \$595.00; and, on 16th March, 1885, a contract for heating apparatus was awarded to Messrs. J. J. Blackmore & Co., for the sum of \$1,600.00. At the close of the fiscal year the alterations were completed, and the heating apparatus was being put in. Expenditure, \$853.09 for construction; and \$134.11 for repairs. Total expenditure on this building, \$49,400.21 for construction; and \$6,471.41 for repairs.

KINGSVILLE.

Kingsville, in the Electoral District of South Essex, is situated on Lake Erie, between Point Pelée and the Detroit River, about 25 miles east of Amherstburg.

At the Session of 1884 the sum of \$24,000.00 was voted to continue the work of constructing a harbour of refuge at this place, mentioned in last year's report as being in progress. The contract with Mr. George J. Wilson, referred to in last report, was completed in December, 1884; and on 20th April, 1885, a contract was entered into with Messrs. Porter and Reed for the sum of \$4,915.00, for close-piling the west side of the east pier and filling the same, and at the close of the fiscal year the work was well under way. Expenditure, \$20,348.03. Total expenditure at this place since Confederation, \$43,069.42.

LION'S HEAD.

Lion's Head, in the Electoral District of North Bruce, is situated on Georgian Bay, about 35 miles north-east of Wiarton.

At the Session of 1884 the sum of \$5,000.00 was voted towards the extension of the pier at this place 150 feet. On 24th November, 1884, a contract was entered into with Messrs. Porter & Reed, and good progress had been made up to the close of the fiscal year. Expenditure, \$1,775.55. Total expenditure at this place since Confederation, \$2,003.55.

LITTLE BEAR CREEK.

Little Bear Creek is in the Counties of Kent and Bothwell and empties into the Chenal Ecarté, Lake St. Clair, about 16 miles from Chatham.

At the Session of 1884 the sum of \$2,500.00 was voted for the purpose of continuing the dredging mentioned in last year's report as being in progress; and during the year the work was extended as far as McLeod's Bridge where a turning basin was formed. Expenditure, \$2,494.00. Total expenditure at this place since Confederation, \$7,661.00.

LITTLE CURRENT.

This is the channel between La Cloche and Manitoulin Islands, on the route to Sault Ste. Marie from Georgian Bay Ports, and is about 140 miles from Collingwood.

At the Session of 1884 the sum of \$10,000.00 was voted to continue the work of blasting away the rock in this channel, mentioned in last year's report as being in progress, and operations were continued up to 20th October, 1884, when 4,078 cubic yards of rock had been blasted and removed. Expenditure, \$10,042.14. Total expenditure at this place since Confederation, \$42,480.13.

L'ORIGINAL.

L'Original is the *chef-lieu* of the County of Prescott, and is situated on the south side of the Ottawa River, $6\frac{1}{2}$ miles above Grenville.

At the Session of 1884 the sum of \$2,000.00 was voted towards repairing the pier at this place and dredging the channel to 7 feet deep at low water, and during the year the works have been carried out. Expenditure, \$1,248.28. Total expenditure at this place since Confederation, \$7,219.16.

LONDON.

London, in the County of Middlesex, and itself comprising the Electoral District of London, is situated on the River Thames, 121 miles west of Toronto.

CUSTOM HOUSE.

At the Session of 1884 the sum of \$10,000.00 was voted for the purpose of making the addition to this building, referred to in my last report as being necessary. Plans and specifications were prepared and tenders called for, and, on the 20th March, 1885, a contract was entered into with Mr. Patrick Navin for the sum of \$4,000.00, and the work was in progress at the close of the fiscal year. The extension is being carried out by the demolition of the wing containing the Examining Warehouse and lengthening the main building 55 feet on Queen's Avenue the whole width, 50 feet. This extension will be similar in detail, height, number of stories, &c., to the original building. The ground floor will be for Examining Warehouse, Weight and Measures offices, and extension of the Inland Revenue Long Room; the first floor will be for the Customs Long Room, Custom Clerk's office, Gas Inspector's office, and an office for Inland Revenue; the second floor will be used as store-rooms for Customs and Inland Revenue Departments and Caretakers apartments, and the attic will be unfinished. Expenditure during the fiscal year, \$823.53 for construction, and \$330.60 for repairs. Total expenditure on this building since Confederation, \$59,406.99 for construction; and \$9,411.54 for repairs.

IMMIGRANT SHED.

At the Session of 1884 the sum of \$150.00 was voted for necessary repairs to this building, and during the year the work has been done at a cost of \$152.00. Total expenditure on this building \$7,425.86 for construction; and \$323.85 for repairs.

MILITARY BUILDING.

During the year some further repairs were made to these buildings at a cost of \$905.80. Total expenditure since Confederation, \$5,706.77.

POST OFFICE.

The alterations and repairs referred to in last year's report have been completed at a cost of \$1,362.48. Total expenditure on this building \$54,042.37 for construction; and \$11,415.63 for repairs.

MEAFORD.

Meaford, in the Electoral District of East Grey, is on the south-west side of Georgian Bay, 18 miles from Collingwood, and 20 miles east of Owen Sound.

At the Session of 1884 the sum of \$2,000.00 was voted towards dredging this harbour. Work was commenced on the 8th October, 1884, and continued until the 3rd November, when 14,996 cubic yards of material had been removed. Expenditure during the fiscal year, \$2,343.75. Total expenditure at this place since Confederation, \$45,485.05.

MIDLAND.

Midland, in the Electoral District of East Simcoe, is at the foot of Gloucester Bay, an arm of Georgian Bay, and is the terminus of the Midland Division of the Grand Trunk Railway.

At the Session of 1884 the sum of \$10,000.00 was voted towards dredging this harbour on the condition of certain works being performed by the Grand Trunk Railway; but up to the close of the fiscal year nothing had been done, and no expenditure had taken place.

MORPETH.

Morpeth, in the Electoral District of West Elgin, is situated on Lake Erie, about 10 miles east of Rondeau.

At the Session of 1884 the sum of \$12,000.00 was voted towards continuing the construction of the pier at this place, mentioned in last year's report as being under contract; and, in November, 1884, the work was completed. Expenditure during the fiscal year, \$13,866.03. Total expenditure at this place since Confederation, \$20,148.46.

NAPANEE RIVER.

The Napanee River is in the County of Lennox, and empties into the Bay of Quintee, below the town of Napanee.

The dredge "Ontario" worked on the shoals in the river and in straightening some sharp bends, from 11th July to 6th August, 1884, when she was removed

elsewhere, and the work continued by a dredge hired by the Department. Total quantity of material removed, 50,254 cubic yards of clay, sand and muck. Expenditure during fiscal year, \$6,745.17. Total expenditure since Confederation, \$30,735.47, including \$3,000.00 contributed by the town of Napanee, and \$2,000.00 by the United Counties of Lennox and Addington.

NEWCASTLE.

Newcastle, in the Electoral District of West Durham, is situated on Lake Ontario, 47 miles eastward of Toronto.

The repairs to the pier mentioned in my last report as being under contract, were completed in September, 1884. Expenditure during the fiscal year, \$3,511.07. Total expenditure since Confederation, \$22,928.51.

ORANGEVILLE.

Orangeville, in the Electoral District of Centre Wellington, is situated on a branch of the Credit River, and is 40 miles from Toronto by the Toronto, Grey and Bruce Railway.

At the Session of 1884 the sum of \$6,000.00 was voted towards the erection of a Public Building to accommodate the Postal and other service. A site on Broadway, 75 by 132 feet, was deeded to the Crown on 7th April, 1884, free of cost; and, on 5th November, 1884, a contract for the building was entered into with Mr. M. A. Piggott, for the sum of \$11,150 00. The main building will be of random coursed stone work, quoins, angles, and window and door openings being of cut stone. Dimensions 40 feet 6 inches front, by 26 feet 6 inches depth, two stories, with basement and attic. In the rear will be a one story brick building, on stone foundations, 24×23 feet. Expenditure during the fiscal year, \$927.81.

OTTAWA.

Ottawa, the Capital of the Dominion, comprises an Electoral District returning two members, and is situated on the Ottawa River, 117 miles from Montreal by Canadian Pacific Railway.

DREDGING.

The dredge "Nipissing" worked from 30th October to 20th November, 1884, on the stone shoal in the Ottawa River, opposite Bronson's wharf, removing 1,500 cubic feet of boulders and gravel. Expenditure, \$1,007.25.

DRILL HALL

The Caretaker's house referred to in last year's report was completed in the autumn of 1884. Expenditure, \$2,590.50. Total expenditure on the Drill Hall, \$30,608.33 for construction; and \$511.63 for repairs.

GEOLOGICAL MUSEUM.

At the Session of 1884 the sum of \$3,000.00 was voted for alterations and repairs to this building, and during the fiscal year the works have been partly carried out. Expenditure, \$2,280.87 for repairs; and \$234.56 for construction. Total expenditure on this building, \$53,022.67 for construction; and \$7,642.36 for repairs.

MILITARY STOREHOUSE.

During the year the interior of this building has been fitted up. Expenditure, \$1,112.65. Total expenditure, \$6,410.32.

MONUMENT TO SIR GEORGE E. CARTIER.

At the Session of 1884 the sum of \$2,000.00 was voted towards paying for the statue of the late Sir George Etienne Cartier and pedestal for the same, and the unexpended balance of appropriation for 1883-84, \$6,711.52, was carried forward. The pedestal was finished in the autumn of 1884, and erected in the Parliament Grounds, on the west side of the Centre Block. The statue was placed on it in December, and the formal unveiling took place on the day of the opening of the last Session of Parliament, 29th January, 1885. Expenditure during the fiscal year, \$3,294.19. Total expenditure on this work, \$10,346.77.

NATIONAL ART GALLERY.

At the Session of 1884 the sum of \$1,500.00 was voted towards the maintenance of this Gallery and the purchase of pictures, and during the fiscal year the sum of \$772.20 has been expended. In Appendix No. 26, page 411-14, will be found the report of the Curator from which it appears that the total number of works of art now in the Gallery is 93; and that the number of visitors has increased from 9,928 in 1883-84 to 11,893 in 1884-85.

NEPEAN POINT.

The Caretaker's residence referred to in my last report was completed early in the fiscal year. Expenditure, \$1,200.00. Total expenditure, \$1,873.50.

NEW DEPARTMENTAL BUILDING, WELLINGTON STREET.

At the Session of 1884 the sum of \$150,000.00 was voted towards the construction of this building, a full description of which appeared in last year's report. Work on this building was prosecuted until the close of the building season when it was covered in for the winter. Expenditure during fiscal year, \$40,217.50. Total expenditure \$155,821.68.

POST OFFICE.

At the Session of 1884 the sum of \$3,000.00 was voted for general repairs. The walls and ceilings of the corridors and staircases have been cleaned and coloured in calomine, and the woodwork of the stairway painted. Expenditure during the fiscal year, \$3,431.19. Total expenditure on this building, \$248,953.25 for construction; and \$4,040.48 for repairs.

PUBLIC BUILDINGS.

At the Session of 1884 the sum of \$107,000.00 was voted for the heating and general maintenance of the Parliamentary and Departmental Buildings and grounds, in addition to which the sum of \$41,500.00 for repairs was included in the usual vote of \$175,000.00 for rents and repairs to Public Buildings generally. Essential repairs, cleaning, painting, &c., have been effected in connection with the Parliament and Departmental Buildings, and the grounds have been maintained efficiently. In the Parliament Building a further test of the incandescent electric light was made, the system being extended to the Commons Chamber and found to work satisfactorily. In the Eastern Block it was found necessary to overhaul a portion of the heating apparatus, the piping being 21 years old. The vault piping was also remodelled to a more modern system for economy in maintenance and working. The heating apparatus, gas, water and bell services were kept in good order. Several contracts for coal, wood, &c., were entered into during the year, a list of which will be found in Appendix No. 23, page 292. Expenditure during the fiscal year, \$409,17 for construction; and \$114,850.65 for repairs, &c. Total expenditure on these buildings, \$1,205,461.25 for construction; and \$1,421,813.56 for repairs.

SUPREME COURT.

During the year the sum of \$216.25 has been expended on necessary repairs. Total expenditure on this building, \$64,212.39 for construction, and \$3,428.10 for repairs.

OWEN SOUND.

Owen Sound, in the Electoral District of North Grey, is situated at the mouth of the Sydenham River, which empties into Georgian Bay.

CUSTOM HOUSE.

During the year the sum of \$285 25 was spent on necessary repairs.

HARBOUR.

At the Session of 1884 a further sum of \$10,000.00 was voted to continue the deepening of this harbour; and a depth of 16 feet has been obtained up to the inner light. Expenditure during the fiscal year, \$9,596.60. Total expenditure on this harbour since Confederation, \$84,306.76.

PETERBORO'.

Peterboro', in the Electoral District of West Peterboro', is situated on the Otonabee River, and is about 94 miles north-east of Toronto.

At the Session of 1884 the sum of \$7,000.00 was voted towards a building to accommodate the Customs and other services; but up to the close of the fiscal year a site had not been obtained.

PORT ALBERT.

Port Albert, in the Electoral District of West Huron, is at the mouth of Nine Mile Creek, which empties into Lake Huron, 19 miles north of Goderich.

At the Session of 1884 the sum of \$1,000.00 was voted towards repairing the piers which form this harbour, and during the year the work has been carried out. Expenditure, \$1,064.30. Total expenditure at this place since Confederation, \$12,776.64.

PORT ARTHUR.

Port Arthur, in the County of Algoma, is on Thunder Bay, Lake Superior, and is the terminus of the Thunder Bay Branch of the Canadian Pacific Railway.

HARBOUR.

At the Session of 1884 the sum of \$150,000.00 was voted toward the construction of a breakwater at this place, and the sum of \$25,000.00 was contributed by the Town of Port Arthur. On 8th September, 1884, a contract was entered into with Mr. D. Macdonald for the construction of 2,000 feet of the breakwater intended to protect the wharves, for the sum of \$146,000.00, and at the close of the

fiscal year the work was more than half completed. Expenditure, \$63,133.65. Total expenditure on this work, \$64,832.37.

IMMIGRANT BUILDING.

During the year the sum of \$175.00 was spent for necessary repairs. Total expenditure on this building, \$9,375.55 for construction ; and \$175.00 for repairs.

PORT ELGIN.

Port Elgin, in the Electoral District of North Bruce, is on the eastern shore of Lake Huron, 24 miles north of Kincardine.

At the Session of 1884 the sum of \$5,000.00 was voted to continue the work of improving the harbour at this place, and the unexpended balance of \$4,263.20 carried forward. On 24th November, 1884, a contract was entered into with Mr. D. Porter for the sum of \$11,135.00 for the extension shorewards for a distance of 950 feet of the northerly end of the present breakwater, and at the close of the fiscal year good progress had been made. Expenditure, \$7,308.49. Total expenditure at this place since Confederation, \$23,336.80.

PORT HOPE.

Port Hope, in the Electoral District of East Durham, is on Lake Ontario, 6 miles east of Toronto.

HARBOUR.

At the Session of 1884 the sum of \$7,500.00 was voted towards repairing the harbour works, mentioned in last year's report as having been damaged by storms and the work was in progress at the close of the year. Expenditure, \$5,089.51. Total expenditure since Confederation, \$63,541.30.

PUBLIC BUILDING.

At the Session of 1884 the sum of \$15,000.00 was voted towards the completion of this building intended to accommodate the Postal, Customs and other services, a full description of which will be found in my report for 1882-83. On 23rd January, 1885, a contract for heating apparatus was entered into with Mr. Chanteloup for the sum of \$1,485.00, and, on 20th March, 1885, a contract was made with Mr. Thos. Newson for internal fittings for the sum of \$2,400.00. The building was nearly completed at the close of the fiscal year, and it was expected that it would be occupied in the autumn. Expenditure during the fiscal year, \$12,140.67. Total expenditure on this building, \$36,658.96

PORT STANLEY.

Port Stanley, in the Electoral District of East Elgin, is situated on Lake Erie, nearly midway between Long Point and Rondeau.

During the year the pier on which the lighthouse stands was put in thorough repair. Expenditure, \$1,000.00. Total expenditure at this place since Confederation, \$9,758.00.

PRESCOTT.

Prescott, in the Electoral District of South Grenville, is situated on the north shore of the St. Lawrence, 112 miles west of Montreal.

At the Session of 1884 the sum of \$8,000.00 was voted for the purpose of providing a building to accommodate the Postal and other services; but up to the close of the fiscal year a site had not been obtained and no expenditure had taken place.

RIDEAU HALL.

Rideau Hall, the residence of His Excellency the Governor General, is situated in the County of Russell, about 2 miles from the City of Ottawa.

The usual annual cleaning, partial repainting, repapering, whitewashing and repairs were done, together with repairs to furniture, supplying glassware, &c. On 9th December, 1884, a contract for the removal of snow was entered into with Mr. A. Devlin for the sum of \$495.00. Expenditure during the fiscal year, \$31,193 70 for repairs. Total expenditure on this building, \$236,785.48 for construction, and \$512,041.96 for repairs.

RIVER KAMINISTIGUIA.

The River Kaministiquia rises in Dog Lake, Algoma County, and empties into Thunder Bay, Lake Superior, near Prince Arthur's Landing.

A portion of the vote of \$150,000.00 passed at the Session of 1884 for the improvement of the Harbour of Port Arthur and the Kaministiquia River, being intended for dredging this river, a contract for the work was entered into on 8th July, 1884, with Mr. C. S. Baker, for the sum of \$20,000.00. A channel 3,700 feet

in length and 100 feet in width, with an average depth of 18 feet through the centre and $14\frac{1}{2}$ feet at the sides, has been opened through the shoal off the mouth of this river, 121,500 cubic yards of blue clay being removed. Soundings taken since the work was done show that no filling in has taken place. Expenditure, \$29,089.16.

RIVER OTTAWA.

The River Ottawa flows from Lake Témiscamingue into the St. Lawrence at Ste. Anne de Bellevue, forming for a great part of its length the boundary between Ontario and Quebec.

NARROWS ABOVE PEMBROKE.

At the Session of 1884 the sum of \$2,000.00 was voted to continue the work of improving the navigation of the river at this point, mentioned in last year's report as being in progress. The removal of boulders was resumed on 12th August and continued until completed, when a channel 100 feet wide, with 7 feet depth at the lowest stage of the river had been obtained and was well buoyed, Expenditure during the fiscal year, \$2,386.56. Total expenditure at this place since Confederation, \$3,594.46.

UPPER OTTAWA IMPROVEMENT.

At the Session of 1884 the sum of \$5,000.00 was voted for the purpose of making a survey of the Upper Ottawa between Mattawan and Lake Témiscamingue, with a view to ascertaining which, if any, was the most feasible of the schemes for the improvement of the navigation of the Upper Ottawa and Lake Témiscamingue, submitted to the Government. The projects, four in number, differed very greatly in the objects to be obtained, and were as follows:—1st. To construct a dam at Mountain Rapids of a sufficient height to raise that portion of the Ottawa to the foot of Lake Témiscamingue, about 218 miles, to the level of the lake, for the purpose of permitting a continuous navigation from the head of the lake to the Mountain Rapids, which are 11 miles from the Canadian Pacific Railway at Mattawa, with which connection could be had either by a branch railway or by a highway bridge. This would give 94 miles of still water navigation to the head of Lake Témiscamingue, or adding the distance for which the River Blanche could be utilized, viz., 30 miles, a total of 124 miles. 2nd. To construct a dam at the foot of Lake Témiscamingue of sufficient height to raise and maintain the waters of this lake 15 feet above their normal summer level, the intention being to hold this impounded water in reserve for the purpose of flushing the river, by means of sluice gates, during its low stages, so as to facilitate the passage of timber and increase the supply of water to the mills at Ottawa. 3rd. To construct a dam across the

Ottawa immediately above the confluence of the Mattawan, of such a height as would raise the water in the river about to the level of Lake Témiscamingue, and thus permit navigation to be brought almost immediately in connection with the facilities offered by the Canadian Pacific Railway. 4th. A proposition by the Rev. Mons. Paradis, Missionary Priest at Lake Témiscamingue, to lower the level of the lake $21\frac{1}{2}$ feet, and to build a dam at the Maple Rapids, 7 miles above Mattawa, of such a height as would make still-water navigation to the head of Lake Témiscamingue. The survey was made by Mr. Thos. Guerin, C. E., whose report, together with that of the Chief Engineer of this Department, and a memorial from Rev. Father Paradis, will be found in Appendix No. 6, page 101. The Chief Engineer submits project No. 1, viz., to construct a dam at Mountain Rapids, thus obliterating the Long Sault and creating a stretch of navigable water nearly 130 miles in extent, as the most feasible and most productive of benefit. The estimated cost of this work is \$2,100,000.00. Expenditure on survey, \$6,825.16.

RIVER SYDENHAM.

The River Sydenham, in the Electoral District of Bothwell, has its outlet in the Chenal Ecarté, the passage between Ste. Anne's Island, and the mainland, Lake St. Claire.

At the Session of 1884 the further sum of \$2,500.00 was granted to continue the removal of sunken logs and other obstructions from the north branch of the river, mentioned in last year's report as being in progress. During the year a further section has been cleared, and navigation improved. Expenditure, \$2,499.90. Total expenditure on this river since Confederation, \$17,369.16.

RONDEAU.

Rondeau Harbour, in the County of Kent, is on Lake Erie, 140 miles east of Port Colborne, the western entrance to the Welland Canal.

At the Session of 1884 the sum of \$4,000.00 was voted for the purpose of repairing the west pier and the breakwater in front of the light-keeper's house; and at the close of the fiscal year the work was in progress. Expenditure, \$2,359.18. Total expenditure at this place since Confederation, \$210,433.54.

SARNIA.

Sarnia, in the Electoral District of West Lambton, is situated on the River St. Claire, and is 168 miles from Toronto by railway.

At the Session of 1884, the sum of \$1,050.00 was voted for the purpose of building a platform and verandah around the Immigrant Shed at this place; but up to the close of the fiscal year work had not been commenced. Total expenditure on this building, \$3,052.27.

SAULT STE. MARIE.

Sault Ste. Marie, the shire town of Algoma County, is situated at the head of the St. Mary's River, which connects Lakes Huron and Superior.

At the Session of 1884 the sum of \$4,000.00 was voted towards dredging the shoal of sandstone rock, off the steamboat wharf, so as to give a depth of 16 feet, and the work has been proceeded with during the year. Expenditure, \$4,444.50 which is the only expenditure since Confederation.

SHANNONVILLE.

Shannonville, in the Electoral District of East Hastings, is situated on the Salmon River, about a mile and a-half from its outflow into the Bay of Quinté.

The dredge "Ontario" worked at this place from 7th August to 15th November, 1884, opening a channel through the shoal of sawdust and slabs which obstructed the mouth of the river. Quantity of material removed 41,140 cubic yards. Expenditure, \$3,499.12. Total expenditure since Confederation, \$6,492.06.

SOUTHAMPTON.

Southampton, in the Electoral District of North Bruce, is situated at the mouth of the Saugeen River, which empties into Lake Huron.

At the Session of 1884 the sum of \$7,500.00 was voted to continue the works at this place mentioned in last year's report as being under contract, and at the Session of 1885 a further grant of \$3,000.00 was made. The extension of 250 feet to the landing pier was completed in August, 1884, and a talus of stone, to prevent

scouring, has been placed at its western end. Expenditure during the fiscal year, \$10,132.98. Total expenditure at this place since Confederation, \$20,300.16.

ST. CATHARINES.

St. Catharines, in the Electoral District of Lincoln and Niagara, is situated on the Welland Canal about 32 miles east of Hamilton.

At the Session of 1884 the sum of \$2,200.00 was voted for the purpose of finishing the attic in the Public Building at this place, and placing iron cresting on the roof; and during the year the works were carried out. Expenditure, \$1,584.00. Total expenditure on this building, \$57,005.99.

ST. THOMAS.

St. Thomas, in the Electoral District of East Elgin, is on the Great Western and Canada Southern Railways, and is about 15 miles from London.

At the Session of 1884 the further sum of \$15,000.00 was voted to continue the construction of the Public Building to accommodate the Postal, Customs and other services, a full description of which will be found in my report for 1882-83. On 20th April, 1885, a contract was entered into with Messrs. J. J. Blackmore & Co. for heating apparatus for \$1,899.00. The building has been completed and at the close of the fiscal year was being fitted, furnished and supplied with a hot-water heating apparatus. Expenditure during the year, \$14,451.92. Total expenditure on this building, \$50,407.07.

STRATFORD.

Stratford, in the Electoral District of North Perth, is situated on the River Avon, about 90 miles west of Toronto.

At the Session of 1884 the sum of \$2,500.00 was voted for the purpose of providing a clock for this building. On 8th August, 1884, a contract was entered into with Messrs. Woods & Ellis for a clock having four dials, and it has been placed in position on the roof in the centre of the principal point. Expenditure during the year, \$1,813.27. Total expenditure on this building, \$45,292.87.

THORNBURY.

Thornbury, in the Electoral District of East Grey, is situated at the mouth of the Beaver River which flows into Georgian Bay, 13 miles from Collingwood.

At the Session of 1884 the sum of \$1,000.00 was voted to continue the harbour protection work, mentioned in last year's report as being in progress, and during the year they have been completed. Expenditure, \$1,034.94. Total expenditure since Confederation, \$22,321.09.

TORONTO.

Toronto, the principal city in the Province of Ontario, is situated on Lake Ontario, 161 miles west of Kingston, and comprises the Electoral Districts of East, Centre and West Toronto.

ASSISTANT RECEIVER-GENERAL'S OFFICE.

At the Session of 1884 the sum of \$1,000.00 was voted for the purpose of making alterations and repairs to this office, and during the year the works were partly carried out. Expenditure, \$989.00 for construction; and \$177.65 for repairs. Total expenditure on this office, \$989.00 for construction; and \$1,522.54 for repairs.

CUSTOM HOUSE.

At the Session of 1884 the sum of \$1,600.00 was voted for the purpose of purchasing a clock to place in the tower on this building, but up to the close of the fiscal year the clock had not been procured. During the year some alterations and repairs were made. Expenditure, \$297.48. Total expenditure on the building, \$236,010.78 for construction; and \$6,567.77 for repairs.

EXAMINING WAREHOUSE.

At the Session of 1884 the sum of \$25,000.00 was voted towards completing the addition to this building mentioned in last year's report as being under contract, and at the Session of 1885 a further grant of \$8,500.00 was made. The addition was completed and occupied in January, 1885. Expenditure during the fiscal year, \$33,912.10 for construction, and \$390.67 for repairs. Total expenditure on this building, \$307,101.73 for construction; and \$14,892.36 for repairs.

FORTS.

The alterations to the new fort referred to in last year's report have been completed. Expenditure during the fiscal year, \$752.99. Total expenditure on these forts since Confederation, \$21,625.78 for construction; and \$8,594.41 for repairs.

HARBOUR.

At the Session of 1884 the sum of \$65,000.00 was voted to continue the works for the protection of the harbour, which were fully described in last year's report, and at the Session of 1885 the further grant of \$50,000.00 was made. The works on Toronto Island were virtually completed at the close of 1884, but the stone on the outer slope, which had been deposited during the year, was, on the more exposed portions, washed down during a heavy gale last spring. On Contract A no further work of extension was undertaken during the year, and only stone was placed to make up deficiencies in the protection slope. These works have proved to be of much benefit to the harbour and for the protection of the eastern end of the island. Dredging at the western entrance, which was being carried on at the close of last fiscal year, was continued until 31st August, 1884, when the work undertaken was accomplished, and the channel materially improved. Expenditure, \$117,078.77. Total expenditure since Confederation, \$493,972.63.

IMMIGRANT SHED.

At the Session of 1884 the sum of \$420.00 was granted for the purpose of repairing the fences and sidewalks and making an addition to the kitchen, and the works have been carried out. Expenditure, \$246.45 for construction, and \$152.48 for repairs. Total expenditure on this building, \$12,080.63 for construction; and \$4,395.32 for repairs.

INLAND REVENUE OFFICE.

The sum of \$130.00 was spent for repairs. Total expenditure on this building, \$32,716.07 for construction; and \$27,557.20 for repairs.

POST OFFICE.

At the Session of 1884 the sum of \$3,450.00 was voted for the purpose of repairing the roof, doing external painting, &c., and at the Session of 1885 a further grant of \$495.00 was made. During the year the improvements have been carried out. Expenditure, \$5,172.54 for construction; and \$438.34 for repairs.

WILSON'S ROCK.

Wilson's Rock, in Algoma County, is situated in Georgian Bay, about 35 miles from Sault Ste. Marie and 8 miles above Neebish Rapids.

At the Session of 1884 the sum \$5,000.00 was voted for the purpose of building a block of crib work, with a beacon thereon, on this rock. On 29th July, 1884, a contract was entered into with Messrs. Burdett & Clark for the work for the sum of \$3,780.00, and the contract has been completed. Expenditure during the fiscal year, \$4,642.43, which is the only expenditure at this place since Confederation.

WINDSOR.

Windsor, in the Electoral District of North Essex, is situated on the Detroit River, immediately opposite the City of Detroit, Mich., and 110 miles west of London, Ont.

During the year the sum of \$126.13 was spent on repairs to the Public Building at this place. Total expenditure on this building, \$67,368.90 for construction; and \$2,346.29 for repairs.

PROVINCE OF MANITOBA.

ASSINIBOINE RIVER.

The Assiniboine River rises in the District of Saskatchewan and discharges into the Red River at Winnipeg.

The small sum of \$15.00 was expended for repairs to the wing dams built in 1880. Total expenditure on this river, \$15,503.47.

BRANDON.

Brandon, in the Electoral District of Selkirk, is on the south bank of the Assiniboine River, 132 miles west of Winnipeg by Canadian Pacific Railway.

IMMIGRANT BUILDING.

At the Session of 1884 the sum of \$1,000.00 was voted for fencing the building and constructing a wood shed, and during the year the works have been carried out. Expenditure, \$1,013.04. Total expenditure on this building, \$22,155.16 for construction, and \$131.00 for repairs.

POST OFFICE.

The small sum of \$82.24 was spent during the fiscal year on repairs to the building.

EMERSON.

Emerson, in the Electoral Division of Provencher, is situated on the east side of the Red River, at the boundary between Manitoba and the United States, and is 63 miles from Winnipeg by Canadian Pacific Railway.

During the fiscal year the sum of \$261.25 has been spent for repairs to the Immigrant Station. Total expenditure on the building, \$1,186.10 for construction and \$467.10 for repairs.

HARBOURS GENERALLY, MANITOBA.

At the Session of 1884 the sum of \$1,000.00 was voted for general repairs and maintenance of harbours and rivers in Manitoba; and during the fiscal year the sum of \$988.60 has been expended. Total expenditure, \$1,776.39.

RED RIVER.

The Red River takes its rise in the United States, and flows for about 140 miles through Manitoba, emptying into Lake Winnipeg.

With the \$10,000.00 appropriated at the Session of 1884 for dredging, the work of cutting a channel through the bar at the mouth of this river, referred to in last year's report, was continued during the working season of 1884, and much relief has been afforded to vessels navigating the lake and river. Expenditure during the fiscal year, \$9,965.99. Total expenditure on this river, \$28,435.60.

STONY MOUNTAIN.

Stony Mountain, in the Electoral District of Lisgar, is situated on the Stonewall Branch of the Canadian Pacific Railway, 13 miles north-west of Winnipeg.

At the Session of 1884 the sum of \$40,000.00 was voted towards additions and improvements to the Penitentiary at this place, and the unexpended balance of appropriation for 1833-84, \$10,213.68 was carried forward. During the year double cottages for guards, a dry house for lumber, a coal shed and abattoirs have been constructed, a conservatory added to Warden's house, and general repairs made to the prison building and outbuildings. Expenditure, \$31,077.05. Total expenditure on this building, \$261,481.72 for construction; and \$5,034.01 for repairs.

WINNIPEG.

Winnipeg, the Capital of Manitoba, and forming the Electoral District of Winnipeg, is situated at the confluence of the Red and Assiniboine Rivers.

ARCHITECT'S OFFICE.

During the fiscal year the sum of \$1,083.48 was spent for rent and repairs. Total expenditure, \$2,996.50.

CUSTOM HOUSE.

At the Session of 1884 the sum of \$1,000.00 was voted for the purpose of making alterations and repairs to this building, and at the Session of 1885 a further grant of \$600.00 was made. During this fiscal year the drainage has been remodelled, the roof has been repaired and painted, gas has been introduced, and the external and internal woodwork repainted. Expenditure, \$1,295.73. Total expenditure on this building, \$39,938.61 for construction; and \$5,773.95 for repairs.

DOMINION LANDS OFFICE.

The repairs referred to in last years report have been completed. The offices have been re-arranged, additional shelving, furniture, counter, &c., put in; gas water and drain pipes altered, and the interior painted. Expenditure, \$2,049.60. Total expenditure on this building, \$16,426.41 for construction; and \$4,980.17 for repairs.

DRILL HALL.

At the Session of 1884 the sum of \$8,000.00 was voted towards providing Drill Hall for Local Military Corps, and the city of Winnipeg made a grant of \$8,000.00 in consideration of permission being given to use the building for Exhibition purposes. The hall is situated at the corner of Broadway and Fort Osborne streets. A contract for its erection was entered into on 28th October, 1884 with Messrs. Murray & McDiarmid for the sum of \$15,940.00, and work has been prosecuted in such a manner that it is expected the building will be completed before the close of the calendar year. The building is of wood, resting on a foundation of cedar piles, and consists of a Drill Hall, 175 feet by 85 feet, with Infantry and Cavalry Armouries of an aggregate length of 150 feet by a width of 10 feet; and in the rear an Artillery Armoury and a Gun Shed, 19 feet 3 inches wide by a length of 44 feet and 51 feet respectively. A full description of the building will be found in Appendix No. 2, page 33. Expenditure during the year \$12,025.27, which is the only expenditure on this building.

IMMIGRANT BUILDING.

At the Session of 1884 the sum of \$300.00 was voted for the purpose of repairing this building, but up to the close of the fiscal year work had not been commenced.

total expenditure on this building, \$23,598.35 for construction; and \$131.62 for repairs.

LIEUTENANT-GOVERNOR'S RESIDENCE.

At the Session of 1884 the sum of \$7,500.00 was voted for fencing, grading, &c., and at the Session of 1885 a further grant of \$2,000.00 was made. On 7th August, 1884, a contract was entered into with Messrs. Rourke & Cass for grading, fencing, &c., for the sum of \$7,750.00, and during the year the work has been carried out. A conservatory, a wood shed, an ice house and a wash house have been built and iron cresting placed on the top of the building. Expenditure \$3,571.10. Total expenditure on this building \$89,204.90.

PARLIAMENT BUILDINGS.

At the Session of 1884 the sum of \$12,000.00 was voted towards the completion of this building, and the unexpended balance of appropriation for 1883-84, \$2,033.42, was carried forward. During the year the works referred to in my last report were completed; the Legislative Chamber was frescoed and fitted with gas fixtures arranged so that the electric light can be used, plank walks laid, fencing and grading done, &c. Expenditure, \$19,468.51. Total expenditure on this building, \$189,946.58.

POST OFFICE (NEW.)

At the Session of 1884 the sum of \$40,000.00 was voted towards the completion of this building, a description of which will be found in my last report, and the unexpended balance of appropriation for 1883-84, \$20,442.71, was carried forward. The original contractor for this building having failed, new tenders were invited, and, on the 10th October, 1884, a contract was entered into with Messrs. J. E. Selley & Co., for the completion of the building for the sum of \$135,130.00, and the work has been so steadily prosecuted that the building was roofed this autumn. Expenditure during the fiscal year, \$64,165.67. Total expenditure on this building, \$8,203.65.

POST OFFICE (TEMPORARY.)

During the fiscal year the roof of this building has been re-shingled, gas fittings provided, and a portion of the Post Office fittings altered. Expenditure, \$62.65. Total expenditure on this building, \$11,744.98.

POWDER MAGAZINE.

At the Session of 1885 the sum of \$2,756.95 was voted towards the completion of this building, a full description of which will be found in last year's report, and the unexpended balance of appropriation for 1883-84, \$1,161.55, was carried forward. The building was finished and in use last summer. Expenditure during the fiscal year, \$2,820.00. Total expenditure on this building, \$6,658.45.

NORTH-WEST TERRITORIES.

BATTLEFORD.

Battleford, the seat of Government of the North-West Territories until the building of the Canadian Pacific Railway, is situated on the north-west branch of the river Saskatchewan, about 200 miles north of Swift Current, which is 511 miles west of Winnipeg by Canadian Pacific Railway.

INDIAN INDUSTRIAL SCHOOL.

Out of the amount transferred from the Department of Indian Affairs, for the construction and repairs of Indian Industrial Schools, the sum of \$3,082.00 was spent on repairs to this building.

STIPENDIARY MAGISTRATE'S OFFICE.

The sum of \$2,433.24 was expended in rebuilding the kitchen, and generally repairing this building.

CALGARY.

Calgary, in the District of Alberta, is situated on the Bow River, 839 miles west of Winnipeg by the Canadian Pacific Railway.

At the Session of 1885 the sum of \$7,000.00 was voted for the purpose of erecting a building at this place for the accommodation of Immigrants. On 28th November, 1884, a contract was entered into with Mr. M. P. Zindord for the construction of the building, and a similar one at Medicine Hat, for the sum of \$11,375.00. At the close of the fiscal year the building was well advanced, and has since been finished. The building is of wood, two stories high, with a one-story annex for kitchen. The main building is 51 feet 6 inches by 29 feet 6 inches, and the rear building 18 feet 9 inches by 15 feet 6 inches. Expenditure during the fiscal year \$4,884.55.

FORT QU'APPELLE.

Fort Qu'Appelle, in the District of Assiniboia, is situated on the Qu'Appelle River, 20 miles from Qu'Appelle Station on the Canadian Pacific Railway.

The Indian Industrial School, mentioned in last year's report as being under contract, has been completed and occupied. Expenditure on this building, \$15,998.90.

HIGH RIVER.

High River, in Alberta District, is 38 miles from Calgary.

The Indian Industrial School, mentioned in last year's report as being under contract, has been completed and occupied. The building is of wood, 61 feet wide by 72 feet deep, two stories high; and contains on the ground floor a school room 25 by 40 feet, a dining room 25 by 35 feet, a kitchen 20 by 20 feet, two rooms for the Principal, a class room and a room for the Matron; on the first floor is a dormitory 24 by 50 feet, five bed rooms, a sitting room and two bath rooms. Expenditure during the fiscal year \$12,990.65. Total expenditure \$16,593.15.

MEDICINE HAT.

Medicine Hat, in the District of Assiniboia, is on the main line of the Canadian Pacific Railway, 660 miles west of Winnipeg.

At the Session of 1885 the sum of \$3,550.00 was voted to continue the construction of the Immigrant Building at this place referred to in last year's report. On 28th November, 1884, a contract was entered into with Mr. M. P. Zindord for the construction of the building and a similar one at Calgary, for the sum of \$11,375.00 and the work has been completed. The main building is of wood, 51 feet 6 inches by 29 feet 6 inches, two stories high, and there is a one-story annex in the rear, 18 feet 9 inches by 15 feet 6 inches, for kitchen and closets. Expenditure, \$5,749.98.

PUBLIC BUILDINGS GENERALLY, N.W.T.

At the Session of 1884 the sum of \$5,000.00 was voted for the maintenance and repairs of Public Buildings generally in the North-West, and during the year the sum of \$3,398.43 has been expended.

QU'APPELLE STATION.

Qu'Appelle Station, in the District of Assiniboia, is on the main line of the Canadian Pacific Railway, 324 miles west of Winnipeg.

At the Session of 1884 the sum of \$350.00 was voted for the fencing, &c., to the building erected for the accommodation of immigrants; and during the year

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the works have been carried out. Expenditure \$350.06 for construction, and \$506.46 for repairs. Total expenditure on this building, \$11,937.64 for construction; and \$506.46 for repairs.

REGINA.

Regina, the Capital of the North-West Territories, is in the District of Assiniboia, 356 miles west of Winnipeg by Canadian Pacific Railway.

JAIL AND LUNATIC ASYLUM.

At the Session of 1884 the sum of \$10,000.00 was voted towards the construction of a Dominion Lunatic Asylum and Jail, and at the same Session the sum of \$10,000.00 was voted for building new jails in the North-West. Plans and specifications for a jail and asylum were prepared by the Department, and, on 2nd June, 1885, a contract was entered into with Messrs. J. E. Gelley & Co., for the sum of \$15,877.00, and at the close of the fiscal year the work was well under way. The building will be of brick on a stone foundation. Its extreme length will be 113 feet, and it will consist of the administrative block, 40 feet long by 50 feet wide, and a cell wing, both being two stories high. A full description of the building will be found in Appendix No. 2, page 38. Expenditure, \$12,946.86.

POST OFFICE.

On 2nd June, 1885, a contract was entered into with Messrs. J. E. Gelley & Co., for the construction of this building for the sum of \$4,121.00, and at the close of the fiscal year the work was well under way. The building will be 33 feet square, built of brick on a stone foundation, two stories high, the ground floor being for the Post Office, and the first floor divided into five offices. Expenditure during the fiscal year, \$134.07.

PUBLIC BUILDINGS.

During the year some additions and repairs have been made to the Council Chamber, Court House, Indian Office and Lieutenant-Governor's residence. Expenditure, \$2,947.76. Total expenditure on these buildings, \$23,374.66.

SASKATCHEWAN RIVER.

The Saskatchewan River rises in the Rocky Mountains, and after a course of about 1,200 miles empties into Lake Winnipeg.

At the Session of 1884 the sum of \$10,000.00 was voted to continue the work of improving the navigation of this river, mentioned in last year's report as being in progress, and during the fiscal year some further improvements have been made. Expenditure, \$6,567.00. Total expenditure on this river, \$27,104.71.

PROVINCE OF BRITISH COLUMBIA.

KOWICHAN RIVER.

At the Session of 1884 the sum of \$650.00 was voted to continue the work of improving the navigation of this river, and during the fiscal year a further quantity of drift timber has been removed. Expenditure, \$708.04. Total expenditure, \$3,219.74

ESQUIMALT.

Esquimalt, in the Electoral District of Victoria, is situated on the Strait of San Juan de Fuca, 3 miles from the City of Victoria.

By the Act 47 Vic., Chap. 6 the construction of the Graving Dock at this place, which had been commenced by the Government of British Columbia, was assumed by the Dominion Government, and the sum of \$617,339.78 was voted for the purpose of recouping the Local Government for expenditure on the work (towards which the Imperial Government has promised a contribution of £50,000 stg.) and for completing construction. On the 8th November, 1884, a contract was entered into with Messrs. Larkin, Connolly & Co., for the completion of the dock, for the sum of \$374,559.00, and up to the close of the fiscal year good progress had been made. Expenditure during the fiscal year, \$45,582.18.

FRASER RIVER.

The Fraser, the largest river in British Columbia, rises in the Rocky Mountains, and, after a course of about 700 miles, empties into the Gulf of Georgia.

At the Session of 1884 the sum of \$5,000.00 was voted for the purpose of continuing the work of improving the Cottonwood Canon, mentioned in last year's report as being in progress, and during the year the sum of \$4,802.74 was expended. During the early part of the fiscal year the snag boat removed a quantity of snags from the mouth of the river. Total expenditure on this river since Confederation, \$52,033.28.

NANAIMO.

Nanaimo, in the Electoral District of Vancouver, is on the eastern coast of Vancouver Island, on the Gulf of Georgia, 70 miles from Victoria.

At the Session of 1884 the sum of \$3,500.00 was voted towards the fitting up and finishing of the building to accommodate the Postal and other services, a full description of which appeared in my report for 1882-83, and during the fiscal year the building has been completed and occupied. Expenditure, \$3,510.74. Total expenditure on the building, \$33,154.33.

NEW WESTMINSTER.

New Westminster, in the Electoral District of the same name, is situated on the north bank of the Fraser River, about 75 miles from Victoria.

PENITENTIARY.

At the Session of 1884 the sum of \$15,000 was voted for the purpose of adding 32 cells to this building, and during the year the work has been carried out, as well as some repairs to the Warden's quarters, &c. Expenditure, \$22,392.48. Total expenditure, \$189,744.71.

PUBLIC BUILDING.

During the year some alterations and repairs have been made to the building occupied as Post Office, Custom House, &c., at a cost of \$562.75. Total expenditure on this building, \$25,686.68 for construction ; and \$382.75 for repairs.

SERPENTINE RIVER.

At the Session of 1884 the sum of \$1,000.00 was voted for the purpose of improving the navigation of this river; but up to the close of the fiscal year only \$45.40 had been expended.

VICTORIA.

Victoria, the Capital of British Columbia, is situated near the south-east extremity of Vancouver Island

CUSTOM HOUSE.

During the year the sum of \$704.27 has been expended on necessary repairs. Total expenditure on this building, \$39,164.76 for construction; and \$1,088.34 for repairs.

HARBOUR.

Dredging operations were carried on in James' Bay, Victoria Harbour, for nearly the whole fiscal year, the quantity of material removed being 82,240 cubic yards, and the cost \$11,974.51. The result of this work has been the formation of a mooring berth in this part of the harbour about 300,000 square feet in extent, with a minimum depth throughout of 17 feet at ordinary low water.

IMMIGRANT SHED.

At the Session of 1885 the sum of \$3,000.00 was voted towards the construction of a building for the accommodation of immigrants; but up to the close of the fiscal year a site had not been secured and no expenditure had taken place.

POST OFFICE.

The alterations and repairs referred to in last year's report have been completed. Expenditure, \$1,408.20. Total expenditure on this building, \$40,701.81 for construction; and \$5,781.98 for repairs.

QUARANTINE STATION.

At the Session of 1884 the sum of \$7,500.00 was voted towards the construction of a Quarantine Station for Vancouver Island, and at the Session of 1885 the further grant of \$1,100.00 was made. A site was selected at Albert Head, and during the year a hospital consisting of two one-story wards, each 43 feet square, and a central building 40 by 38 feet, two stories high, has been erected. Expenditure, \$8,119.98.

PUBLIC BUILDINGS GENERALLY.

At the Session of 1884 the sum of \$15,000.00 was voted to pay salaries, travelling expenses, &c., in connection with the Chief Architect's staff, and during the year the sum of \$12,788.87 has been expended.

CIVIL SERVICE EXAMINATIONS.

During the fiscal year examinations of candidates for admission to the Civil Service were held in various cities of the Dominion, as required by the Civil Service

Act of 1882; and the following expenses, incurred in connection with the building in which examinations were held, were paid by this Department:—

St. John, N. B.....	\$180 00
Montreal, P. Q.....	50 00
Quebec	5 00
Kingston, Ont.....	12 60
Toronto, Ont.....	166 00
Total.....	<u>\$413 60</u>

HEATING DOMINION BUILDINGS.

At the Session of 1884 the sum of \$31,300.00 was voted for heating Dominion Buildings Generally, and the sum of \$31,773.76 has been expended. The following statement shows the amount appropriated and amount expended Provinces:—

	Appropriation.	Expenditure.
Nova Scotia.....	\$ 1,410 00	\$1,137 45
Prince Edward Island.....	910 00	424 41
New Brunswick	5,010 00	3,517 76
Quebec.....	10,600 00	13,549 07
Ontario.....	10,250 00	8,683 36
Manitoba.....	2,580 00	2,899 00
North-West Territories.....	.....	420 00
British Columbia.....	540 00	530 74
Generally .....	.....	611 97
	<u>\$31,300 00</u>	<u>\$31,773 76</u>

SALARIES OF ENGINEERS, FIREMEN, &c.

At the Session of 1884 the sum of \$31,000.00 was voted to pay the salaries of Engineers, Firemen and Caretakers employed in Public Buildings throughout the Dominion, a list of whom, with salaries, &c., will be found in Appendix No. 3, pages 41-44, and during the year the sum of \$25,422.24 has been expended.

The following statement shows amount appropriated and amount expended by provinces :—

	Appropriation.	Expenditure.
Nova Scotia.....	\$ 2,436 00	\$ 2,487 00
Prince Edward Island.....	1,458 00	1,533 16
New Brunswick.....	5,810 00	4,787 93
Quebec.....	7,220 00	5,288 31
Ontario.....	12,876 00	10,065 84
North-West Territories.....	.....	200 00
British Columbia.....	1,200 00	1,060 00
	<u>\$31,000 00</u>	<u>\$25,422 24</u>

DREDGES.

At the Session of 1884 the sum of \$30,000.00 was voted for repairs to dredge vessels, and \$30,000.00 for new dredging plant. The expenditure has been \$6,939.59 on account of the former, and \$21,424.70 on account of the latter vote. A full description of the work performed by each dredge will be found in Appendix No. 5, pages 72-99; and Appendix No. 8, pages 191-194, contains a list of the dredging plant belonging to the Department.

SURVEYS AND EXAMINATIONS.

At the Session of 1884 the sum of \$25,000.00 was voted for surveys and examinations, and at the Session of 1885 a further grant of \$2,850.00 was made. During the fiscal years surveys or examinations have been made at 104 places, a list of which will be found in Appendix No. 5, pages 70-72.

SLIDES AND BOOMS.

At the Session of 1884 the sum of \$135,750.00 was voted for the construction, repair and maintenance of the Dominion Slides and Booms, and at the Session of

1885 an additional grant of \$21,000.00 was made. The following is a statement of the expenditure on each work:—

District.	Construc- tion.	Repairs.	Staff and Main- tenance.	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ c
Saguenay District	7,684 02	805 90	943 28	9,433 2
St. Maurice do	11,542 95	6,103 62	17,092 03	34,738 6
Ottawa do	18,304 87	17,342 39	22,109 75	57,757 0
Newcastle do .....	.....	4,468 68	2,244 08	6,712 7
River Morasse Slides.....	994 15	.....	.....	994 1
	38,525 99	28,720 59	42,389 14	109,635 7

SAGUENAY DISTRICT.

The slide and booms to facilitate the descent of timber from Lake St. John to the River Saguenay are situated on La Petite Décharge, the smaller of the two outlets from the lake to the river. The slide is 5,840 feet long, and the boom 1,344 feet. During the fiscal year 1,020 feet of slide have been reconstructed. Dam No. 6, has been rebuilt, and repairs have been made to other dams. Forty one thousand four hundred and twenty-seven logs passed through the slide during the fiscal year.

ST. MAURICE DISTRICT.

The works on the St. Maurice are situated at seven stations, from the mouth of the river to La Tuque Falls, a distance of 100 miles; and there are also two stations on the Vermilion River, a tributary of the St. Maurice. The waters of the St. Maurice were very high during the spring of 1885, and the damage done to the works was considerable, three large piers being carried away by the ice, some others damaged, and about 1,200 feet of boom carried away. At the Grandes Piles three additional piers to strengthen the booms have been built, and repairs made to the other works where required. Two piers, 20 by 20 feet, were rebuilt at the mouth of the St. Maurice, and general repairs effected there and at Shawenegan.

 OTTAWA DISTRICT.

This district embraces the Ottawa River and its tributaries, the Gatineau, Madawaska, Coulonge, Black, Petewawa and DuMoine Rivers. There are in it, altogether, eighty-three stations, and the works for facilitating the descent of timber aggregate as follows:—

5,071	lineal feet of canal.
17,800	“ “ slides.
67,794	“ “ booms.
17,412	“ “ dams.
405	“ “ bulkheads.
2,313	“ “ bridges.
346	“ “ glance piers.
153	piers.
5	storehouses.
4	slide keepers' houses.
1	boom men's house.

The bulk of the 1884 timber reached its destination before the close of last season of navigation, and only a few parcels of square and flatted timber, and some saw-logs that had been stranded in the tributaries, were detained until the drives of the present season. The protracted winter and late spring caused the ice to form to an unusual thickness, and great damage was done to some of the works. At Carillon about 2,400 feet of heavy booms were carried away, and the slide so badly damaged that it could not be used during the summer of 1885. On the Coulonge, Black River and other streams, the works were also injured. During the winter of 1884 the usual repairs were made, a full description of which will be found in Appendix No. 13, pages 213-218.

 NEWCASTLE DISTRICT.

The works in this district are of two classes: those connected with navigation, which are under the control of the Department of Railways and Canals, and those constructed to facilitate the descent of timber down the River Trent and its tributary waters, which are under the control of the Department of Public Works. The winter broke up very gradually, and nothing beyond the usual amount of damage was done to the works. A description of the work and of the repairs made will be found in Appendix No. 14, pages 219-224.

ROADS AND BRIDGES.

At the Session of 1884 the sum of \$35,500.00 was voted for the construction, repair and maintenance of such roads and bridges as are under the control of this Department, and the unexpended balance of \$635.38 was carried forward from 1883-84. The amount available and amount expended, by Provinces, was as follows:—

	Total amount available.	Expended in fiscal years 1884-85.
Quebec.....	\$11,817 69	\$13,161 07
Ontario.....	6,817 69	6,982 72
Manitoba.....	10,000 00	
North-West Territories.....	7,500 00	
	<u>\$36,135 38</u>	<u>\$20,143 79</u>

ROADS.

ILE AUX NOIX.

The road leading from St. Valentin to the Richelieu River, used in connection with the ferry to Ile-aux-Noix, on which Fort Lennox's situated, has been raised, improved and fenced, so that it can now be used at all seasons of the year. Expenditure, \$337.37.

TEMISCOUATA.

During the fiscal year repairs were made to the road-bed, bridges and culverts, where required. Expenditure, \$1,061.15.

BRIDGES.

BATTLE RIVER.

At the Session of 1884 the sum of \$5,000.00 was voted towards bridging the Battle River at Battleford, N.W.T., but up to the close of the fiscal year no expenditure had taken place.

DES JOACHIMS.

At the Session of 1884 the sum of \$13,000.00 was voted towards the completion of this Inter-provincial bridge, connecting the Provinces of Ontario and Quebec,

and the unexpended balance of \$635.38 was carried forward. During the year the bridge has been completed. Expenditure, \$13,894.52.

PORTAGE DU FORT.

At the Session of 1884 the sum of \$5,000.00 was voted to repair the bridge across the Ottawa at this place, and during the year the work was actively prosecuted. Expenditure, \$4,765.24.

RUSSELL.

At the Session of 1884 the sum of \$10,000.00 was voted to assist the Corporation of Russell, Manitoba, in building a bridge across the Assiniboine River; but up to the close of the fiscal year no expenditure had been made.

TELEGRAPHS.

At the Session of 1884 the sum of \$113,975.00 was voted for the construction, repairs, maintenance and working expenses of the Government telegraph lines under the control of this Department, at the Session of 1885 a further grant of \$14,000.00 was made, and the sum of \$33,508.74 was carried forward from 1883-84, making a total of \$161,483.74. Of this sum \$12,540.78 lapsed on 30th September, 1884, the expenditure was \$132,273.10, and the balance remained unexpended on 30th June, 1885. The following statement shows the total amount available for each section, the amount lapsed, and the amount expended :—

	Total Amount Available.	Lapsed on 30th September, 1884.	Expended in Fiscal year 1884-85.
Gulf of St. Lawrence and			
Maritime Provinces.....	\$26,333 22	\$.....	\$18,729 16
North Shore St. Lawrence..	18,128 66	.....	16,493 44
Quebec to Grosse Ile Quar-			
antine Station.....	10,500 00	.....	10,129 67
Manitoba and North - West			
Territories	34,710 74	2,071 60	34,180 27
British Columbia.	58,842 85	9,853 38	38,382 51
Generally.....	12,968 27	615 80	14,358 05
	<u>\$161,483 74</u>	<u>\$12,540 78</u>	<u>\$132,273 10</u>

GULF OF THE ST. LAWRENCE AND MARITIME PROVINCES.

A new line, 43 miles in length, was built in the autumn of 1884, from Chatham to Escuminac, N.B., and an agreement for its maintenance entered into with the Great North-Western Telegraph Company. On the Magdalen Islands, temporary repairs were made to the land lines last autumn, which served to keep the system in running order during the winter, the substitution of cables for aerial wires across the gullies, mentioned in last year's report, being postponed until the current year. The cable connections with Bird Rock and Meat Cove remained good throughout the year. The lines upon the Island of Anticosti, and the land lines and cables in the Bay of Fundy have been kept in good working order.

NORTH SHORE OF THE ST. LAWRENCE.

This line has been extended during the fiscal year a further distance of 125 miles, and now reaches a point beyond the Moisie River, 309 miles east of Murray Bay; and offices have been opened at Sept Iles and Moisie River. During the great gales in November, 1884, a section, 14 miles in length, of the land lines on the peninsula of Manicouagan, west of Point Paradis, was entirely swept away. As it was too late in the season to re-build it, a temporary office was opened at Pointe aux Outardes and a courier service established between that office and Point Paradis, by which communication was maintained through the winter. At the close of the fiscal year arrangements were being made to rebuild the section, and since that date it has been finished. On the 31st March, 1885, the agreement under which the lines from Chicoutimi to Murray Bay, and from Baie St. Paul to Bersimis, had been operated by the Great North-Western Telegraph Company was cancelled, and these lines have since been operated by the Department.

QUEBEC TO GROSSE ILE.

The prevalence of cholera in Europe during the summer of 1884, and the possibility that it may visit our shores, made it desirable that the Quarantine Station at Grosse Ile should be connected by telegraph with the mainland. An arrangement was made with the Great North-Western Telegraph Company, by which a wire was strung on their poles from Quebec to L'Ange Gardien, on the north shore of the St. Lawrence, 13 miles, and a cable was laid from that point to St. Pierre, Island of Orleans, $\frac{3}{4}$ of a mile. Land lines were built from St. Pierre to

St. François, 28 miles, and from the latter place a cable, $5\frac{1}{4}$ miles, was laid to Grosse Ile. During the winter this cable was badly broken by the ice, and about $1\frac{1}{2}$ miles of it carried down the river. A new section of cable was procured as speedily as possible, but it was not until 5th July, 1885, that connection with the Quarantine Station was thoroughly established. Five offices have been opened on the Island of Orleans, and the revenue from December to June has been \$58.96; expenditure about \$100.00.

NORTH-WEST TERRITORIES

During the months of May and June, 1885, two first-class telegraph lines were built for military purposes, at an average rate of about 7 miles per day, and at a cost of about \$200.00 per mile. One was from Dunmore, on the Canadian Pacific Railway to Fort McLeod, *via* the Lethbridge Coal Mines, 136 miles; and the other from Moose Jaw, on the Canadian Pacific, to Wood Mountain, 96 miles. Two short lines were also built, one from Edmonton to St. Albert, 9 miles; and the other from Clarke's Crossing to Saskatoon. The poles for these two lines were supplied by the inhabitants of the districts benefited. Both these short lines are operated by telephone, thus saving the expenses of salaried operators. Since the close of the fiscal year the District Superintendent has made an examination of the route between Battleford and Edmonton with a view to the reconstruction of this portion of the line, and his report will be found in appendix No. 29, pages 423-428.

BRITISH COLUMBIA

In October, 1884, a deep-sea cable was laid between Clover Bay, Vancouver Island, and Dungeness, Washington Territory, where connection was made with the Puget Sound Telegraph Company's wires to Seattle, and with the United States Government lines to Cape Flattery. This cable parted near the beach at Dungeness during a heavy gale on 11th December, and had not been repaired up to the close of the fiscal year, owing to the non-arrival of the heavy shore-ends ordered from England. These have since been received and the cable repaired. The land line between New-Westminster and Grenville has been entirely re-constructed along the new waggon road—the old trail having been abandoned—and other portions of the line efficiently repaired, pending the transfer of the sections between New Westminster and Ashcroft, and Cache Creek and Kamloops, to the Canadian Pacific Railway Company. The revenue has continued to advance, and now shows a surplus of \$1,299.00 over expenditure. This is a great improvement, the deficit for the year 1878-79 being \$34,680.00.

ARBITRATIONS AND AWARDS.

At the Session of 1884 the sum of. \$5,000.00 was voted, as usual, to meet one-half of the expense of the Board of Official Arbitration—the other half being paid by the Department of Railways and Canals. The report of the Secretary of the Board will be found in Appendix No. 27, pages 415-418. Expenditure during the year, \$3,059.27.

GEODETIC LEVELLING BETWEEN LAKE CHAMPLAIN AND THE ST. LAWRENCE.

In Appendix No. 7, pages 125-190, will be found the report of Mr. R. Steckel, C.E., of this Department, of the operations conducted under his supervision during the fall of 1883 and summer of 1884, a short synopsis of which was given in last year's report.

QUEBEC HARBOUR IMPROVEMENTS.

In Appendix No. 9, pages 194-198, will be found the report of the Quebec Harbour Commissioners on the harbour improvements at Quebec and the Graving Dock at Lévis.

SHIP CHANNEL BETWEEN MONTREAL AND QUEBEC.

By the Act 46 Vic., chap. 38, assented to 25th May, 1883, authority was given to advance to the Montreal Harbour Commissioners the further sum of \$900,000.00 to enable them to continue the deepening of the ship channel between Montreal and Quebec, so as to obtain a depth of $27\frac{1}{2}$ feet at low water. Dredging was commenced on the 14th of June, 1883, and the result of the operations to the close of the last fiscal year will be found in Appendix No. 10, pages 199-203.

STAFF EMPLOYED ON SLIDES AND BOOMS.

Appendix No. 15, pages 225-223, contains a list of the staff employed on the different slides and booms, giving date of appointment, salary, &c.

GOVERNMENT PIERS AND WHARVES.

Appendix No. 17, pages 237-243, contain a statement of the Government piers and wharves in Ontario and Quebec, showing their location, dimensions, &c.

OPENING AND CLOSING OF NAVIGATION.

Appendix No 18, pages 245-249, contains tabular statements showing the dates of the opening and closing of navigation for a series of years, at the principal ports of Canada, on the seaboard and on the Gulf and River St. Lawrence, and the Great Lakes; as well as the ports which are always open.

ARRIVALS FROM SEA, &c.

In Appendices Nos. 19, 20 and 21, pages 251-263, will be found statements of the number of vessels which have arrived from sea, from 1868 to 1884, at Halifax, St. John, Charlottetown, Quebec, Montreal and Victoria; the number and tonnage of vessels constructed at the principal ship building ports of Canada, from 1868 to 1884, and the number of vessels wrecked on the sea-coast and in the Gulf, River and Lakes of the St. Lawrence, from 1868 to 1884.

CONTRACTS, PROPERTY PURCHASED, &c.

Appendix No. 23, pages 289-296, contains statements of the contracts entered into by the Department; of property purchased by the Department, and of property leased by or to the Department, during the fiscal year.

ACTS RELATING TO PUBLIC WORKS.

Appendix No. 24, pages 297-299, contains a list of some of the Public Acts of the Parliament of Canada, passed at the Session of 1884, and having reference to the Public Works Department or works under its charge.

TABLES OF DISTANCES.

Appendix No. 25, pages 301-410, contains a number of tables relating to the inland navigation of Canada, ocean routes to foreign countries, Canadian land routes to the seaboard, Government railways and telegraph lines, &c., &c. The fourth part of this Appendix contains some carefully prepared tables, showing the distances by Canadian railways. From these tables, it appears that the longest railway route through Canadian territory, from ocean to ocean, is shorter than the shortest route through American territory.

DEPARTMENTAL STAFF.

Appendix No. 28, pages 419-421, contains a list of the Members, Commissioners and Assistant Commissioners of the Board of Works of the Province of Canada, from 1841 to 1867; and of the Ministers, Deputy Ministers, Secretaries, Chief Engineers and Chief Architects of the Department of Public Works, from Confederation to 30th June, 1885.

OFFICIAL CORRESPONDENCE.

Appendix No. 30, pages 429-432, contains a statement of the official correspondence of the Department from 1867 to 31st December, 1885.

PIERS, PRINCE EDWARD ISLAND.

Appendix No. 31, pages 433-436, contains a statement of the piers built by the Local Government of Prince Edward Island, and assumed by the Dominion Government as being of Federal importance.

EXPENDITURE ON PUBLIC WORKS.

Appendix No. 32, page 437, contains summary statements of the expenditure on public works by Provincial Governments prior to Confederation, and from Government and other sources from Confederation to 30th June, 1885; the amount expended in each Province; the expenditure on works authorized by special Acts of Parliament, and the cost of the Parliament and Departmental Buildings, Ottawa.

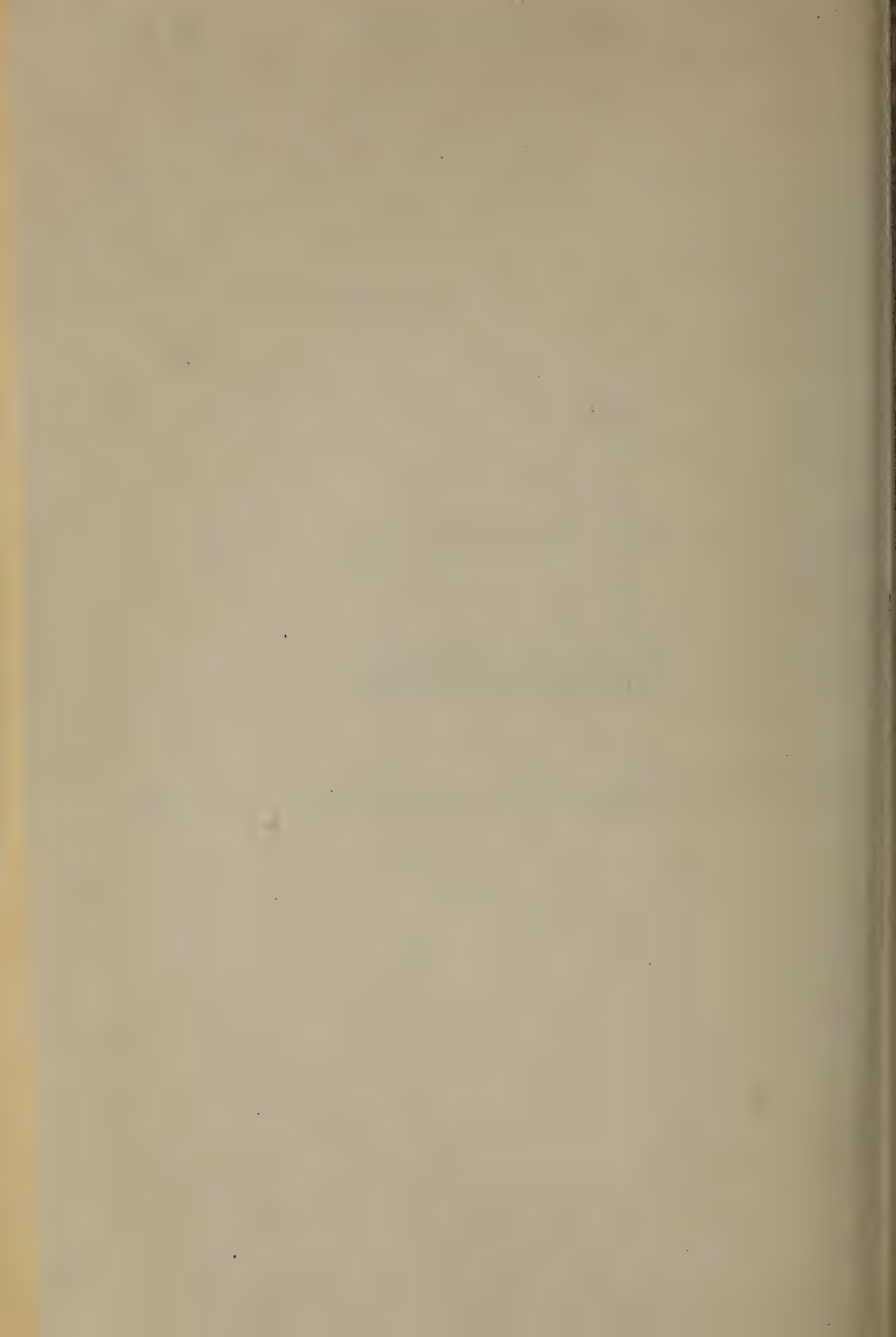
Respectfully submitted,

HECTOR L. LANGEVIN,

Minister of Public Works.

OTTAWA, 21st December, 1885.

APPENDICES.



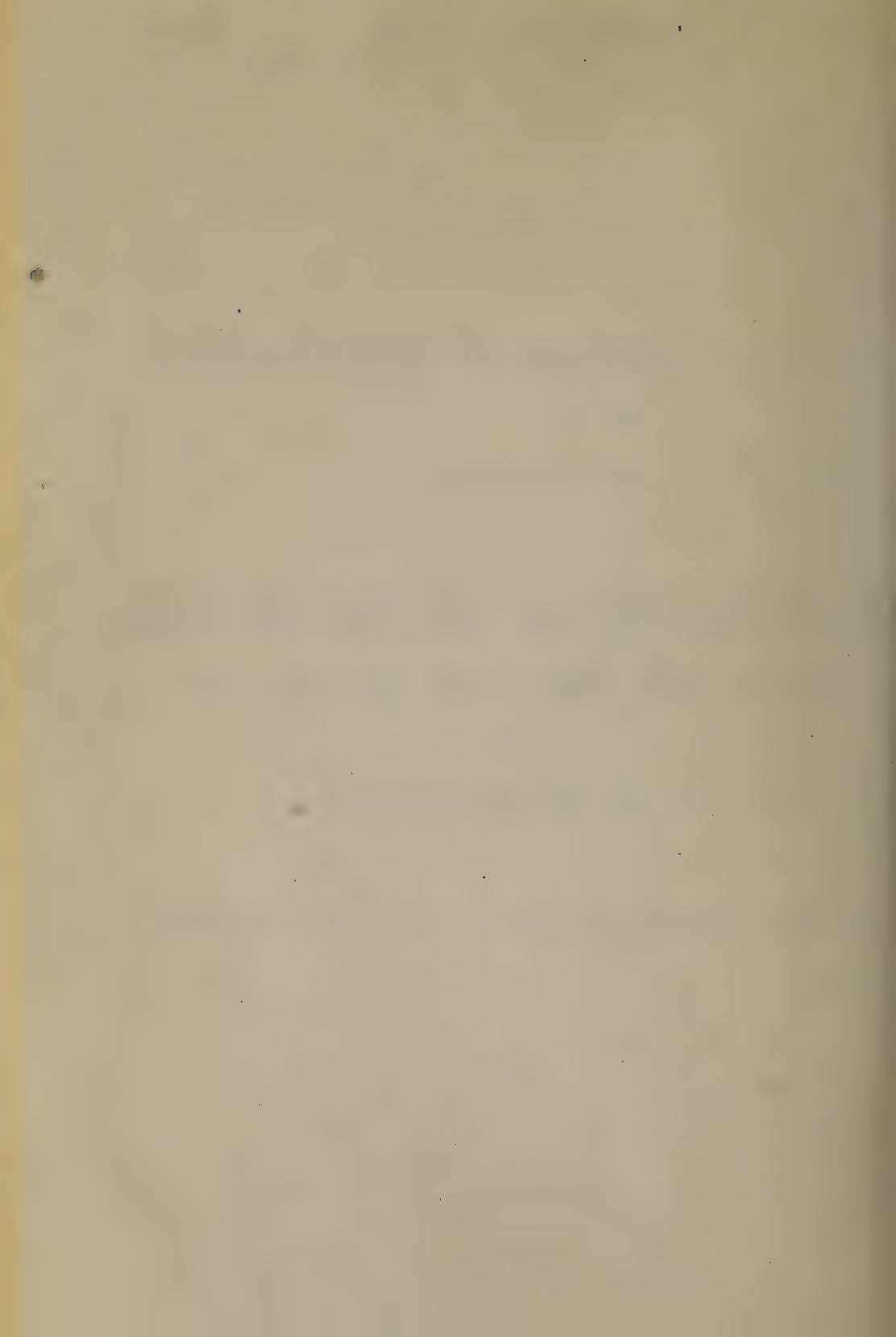
APPENDIX No. I

STATEMENT OF EXPENDITURE

DURING FISCAL YEAR ENDED 30TH JUNE, 1885,

BY

O. DIONNE, ACCOUNTANT.



Req. No. 62,404.

APPENDIX No. I.

STATEMENT showing the Amount expended by the Department of Public Works,
Dominion of Canada, during the fiscal Year ended 30th June, 1885.

Name of Work.	Con- struction.	Repairs.	Staff and Maintenance	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
PUBLIC BUILDINGS.				
GENERALLY	12,788 86			12,788 86
<i>Nova Scotia.</i>				
Amherst Post Office, &c.....	12,995 23			12,995 23
Antigonish do	169 43	25 98		195 41
Arichat do	151 82			151 82
Baddeck do	1,133 35			1,133 35
Halifax Dominion Building	6,694 82	231 49		6,926 31
Lunenburg Marine Hospital.....		302 00		302 00
New Glasgow Post Office, &c.....	13,991 04			13,991 04
North Sydney do	1,908 63			1,908 63
Pictou Custom House	10 00	481 25		491 25
do Marine Hospital.....	763 38	420 00		1,183 38
Sydney do		302 50		302 50
do Quarantine Station.....	473 00			473 00
Truro Custom House, Post Office, &c	13,752 65			13,752 65
Windsor do do	15,638 91			15,638 91
Yarmouth do do	112 49			112 49
<i>Prince Edward Island.</i>				
Charlottetown Dominion Building (New)	1,426 58			1,426 58
do do (Temporary)....	6,207 14	907 73		7,114 87
Georgetown Drill Shed	55 20	25 80		81 00
Montague Post Office, &c	825 50			825 50
Northumberland Strait Mail Service Buildings (half expenditure).....	1,010 51			1,010 51
Summerside Post Office, &c	12,752 89			12,752 89
<i>New Brunswick.</i>				
Bathurst Post Office, &c.....	1,189 25			1,189 25
Carleton do	2,967 25			2,967 25
Chatham do		21 30		21 30
Dorchester Penitentiary	33,894 69			33,894 69
Fredericton Barracks	1,954 63			1,954 63
do Post Office, &c.....		122 75		122 75
Moncton do	17,662 92			17,662 92
Newcastle do	11,814 99			11,814 99
Northumberland Strait Mail Service Buildings (half expenditure).....	1,010 51			1,010 51
Portland Post Office, &c	228 30			228 30
Carried over.....	173,583 97	2,840 80		176,424 77

APPENDIX No. 1—*Continued.*

Name of Work.	Con- struction.	Repairs.	Staff and Maintenance	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Brought forward.....	173,583 97	2,840 80	.....	176,424 77
PUBLIC BUILDINGS— <i>Continued.</i>				
<i>New Brunswick—Concluded.</i>				
St. John Barracks.....		20 00		20 00
do Civil Service Examination Offices.....		180 00		180 00
do Custom House.....	20 00	790 18		810 18
do Fort Dufferin.....	1,650 00			1,650 00
do Marine Hospital.....	13,809 36			13,809 36
do Military Buildings.....		36 60		36 60
do Penitentiary.....		7 50		7 50
do Post Office.....	280 00	722 89		1,002 89
do Public Buildings.....		72 40		72 40
do Savings Bank.....		1 55		1 55
St. Stephens Post Office, &c.....	205 48			205 48
Sussex do.....	427 18	11 00		438 18
Woodstock do.....	9,005 63			9,005 63
<i>Quebec.</i>				
Chamblly Forts.....	1,317 30			1,317 30
Chicoutimi Marine Hospital.....	5,756 22			5,756 22
Grosse Isle Quarantine Station.....	1,968 55			1,968 55
Hull Post Office, &c.....	150 00	56 50		206 50
Lévis Fortifications.....	40 00			40 00
do Immigration Building, &c.....	1,784 09			1,784 09
Montreal Armouries.....	11,510 00			11,510 00
do Assistant Receiver-General's Offices.....	2,667 87			2,667 87
do Champ de Mars.....	5,130 21			5,130 21
do Civil Service Examination Offices.....		50 00		50 00
do Custom House.....	2,316 79	321 27		2,638 06
do Drill Shed.....	40,080 80			40,080 80
do Examining Warehouse.....	69,686 73	365 85		70,052 58
do Inland Revenue Offices.....	1,226 38	413 88		1,640 26
do Post Office.....	5,409 49	630 05		6,039 54
Quebec Citadel.....	5,044 16			5,044 16
do Buildings.....		1,668 61		1,668 61
do Civil Service Examination Offices.....		5 00		5 00
do Clerk of Works' Offices.....		22 00		22 00
do Cullers' Office.....		100 00		100 00
do Custom House.....		388 60		388 60
do Drill Shed.....	27,566 75			27,566 75
do Examining Warehouse.....	27,878 65			27,878 65
do Fortifications.....	332 00			332 00
do Inland Revenue Building.....		28 00		28 00
do Marine Hospital.....	900 40	349 00		1,249 40
do Military Buildings.....		20 44		20 44
do Post Office.....	54 81	127 50		182 31
do Signal Service Inspector's Office.....		469 50		469 50
Sherbrooke Post Office, &c.....	17,420 79	3 25		17,424 04
Sorel Post Office, &c.....	13,237 64			13,237 64
St. John's Barracks.....	635 53			635 53
do Post Office, &c.....		3 65		3 65
St. Regis Custom House.....		43 85		43 85
St. Vincent de Paul Penitentiary.....	28,037 90			28,037 90
Three Rivers Custom House.....	500 00	288 38		788 38
do Post Office.....	8,203 46	320 09		8,523 55
Carried forward.....	477,843 14	10,358 34		488,201 48

APPENDIX No. 1—Continued.

Name of Work.	Con- struction.	Repairs.	Staff and Maintenance	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Brought forward.....	477,843 14	10,358 34	.....	488,201 48
PUBLIC BUILDINGS—Continued.				
<i>Ontario.</i>				
Amherstburg Post Office, &c.	14,698 75	.....	.....	14,698 75
Barrie do	14,924 01	.....	.....	14,924 01
Belleville do	1,893 93	92 85	.....	1,986 78
Berlin do	16,530 63	.....	.....	16,530 63
Brantford do	262 00	184 95	.....	446 95
Brockville do	17,033 92	40 00	.....	17,073 92
Chatham do	9,510 30	76 86	.....	9,587 16
Clifton do	18,467 24	.....	.....	18,467 24
Cobourg do	5,178 37	64 00	.....	5,242 37
Cornwall do	15,373 68	3 45	.....	15,377 13
Galt do	2,427 10	.....	.....	2,427 10
Gananoque Custom House, &c.	1,701 89	.....	.....	1,701 89
Quelph do	47 95	8 45	.....	56 40
Hamilton Post Office, &c.	70,093 52	.....	.....	70,093 52
Kingston Civil Service Examination Offices. ....	.....	12 60	.....	12 60
do Custom House.....	.....	22 45	.....	22 45
do Fortifications.....	1,624 76	.....	.....	1,624 76
do Immigrant Shed.....	.....	639 20	.....	639 20
do Military Buildings.....	.....	66 05	.....	66 05
do Penitentiary.....	10,305 74	.....	.....	10,305 74
do Post Office.....	853 09	134 11	.....	987 20
London Custom House.....	823 53	330 60	.....	1,154 13
do Immigrant Shed.....	.....	152 00	.....	152 00
do Military Buildings.....	.....	905 80	.....	905 80
do Post Office.....	691 71	670 77	.....	1,362 48
Orangeville Post Office, &c.	927 81	.....	.....	927 81
Ottawa Drill Shed.....	2,590 50	.....	.....	2,590 50
do Examining Warehouse.....	.....	450 00	.....	450 00
do Military Storehouse.....	1,112 65	.....	.....	1,112 65
do Museum.....	2,280 87	234 56	.....	2,515 43
do National Art Gallery.....	.....	125 25	646 95	772 20
do Nepean Point.....	1,200 00	.....	.....	1,200 00
do Post Office.....	2,671 82	759 37	.....	3,431 19
do Public Buildings.....	.....	114,850 65	.....	114,850 65
do do Gas.....	.....	.....	16,077 60	16,077 60
do do Grounds.....	.....	.....	10,958 26	10,958 26
do do Heating.....	.....	.....	50,334 62	50,334 62
do do Removal of Snow.....	.....	.....	726 04	726 04
do do Telephonic Service.....	409 17	.....	1,432 18	1,841 35
do do Water.....	.....	.....	12,269 13	12,269 13
do do Wellington Street Block.....	40,217 51	.....	.....	40,217 51
do Supreme Court.....	.....	216 25	.....	216 25
Owen Sound Custom House.....	.....	285 25	.....	285 25
Port Arthur Immigrant Shed.....	.....	175 00	.....	175 00
Port Hope Post Office, &c.	12,140 67	.....	.....	12,140 67
Rideau Hall.....	.....	31,193 70	.....	31,193 70
do Allowance for Fuel and Light.....	.....	.....	8,000 00	8,000 00
do Removal of Snow.....	.....	.....	521 04	521 04
St. Catharines Post Office, &c.	1,584 80	.....	.....	1,584 80
St. Thomas Drill Shed.....	.....	28 00	.....	28 00
do Post Office, &c.	14,454 92	.....	.....	14,454 92
Stratford do	1,810 19	3 08	.....	1,813 27
Carried over.....	761,686 17	162,083 59	100,965 82	1,024,735 58

APPENDIX No. 1—Continued.

Name of Work.	Con- struction.	Repairs.	Staff and Maintenance	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Brought forward.....	761,686 17	162,083 59	100,965 82	1,024,735 58
PUBLIC BUILDINGS—Continued.				
<i>Ontario—Concluded</i>				
Toronto Civil Service Examination Offices.....		166 00		166 00
do Custom House.....	297 48			297 48
do Examining Warehouse.....	33,912 10	390 07		34,302 17
do Fort (New).....	752 99			752 99
do Immigrant Shed.....	246 45	152 48		398 93
do Post Office.....	5,172 54	438 34		5,610 88
do do (Old) Assistant Receiver-Gen- eral's Offices.....	989 00	177 65		1,166 65
do Post Office (Old) Inland Revenue Offices.....		130 00		130 00
Windsor Post Office, &c.....		126 13		126 13
<i>Manitoba.</i>				
Brandon Immigrant Station.....	1,013 04			1,013 04
do Post Office.....		82 24		82 24
Emerson Immigrant Station.....		261 25		261 25
Stony Mountain Penitentiary.....	31,077 05			31,077 05
Winnipeg Architect's Office.....		1,083 48		1,083 48
do Custom House.....	1,295 73			1,295 73
do Dominion Land Office.....		2,049 62		2,049 62
do Drill Shed.....	12,025 27			12,025 27
do Lieutenant-Governor's Residence.....	8,571 10			8,571 10
do Parliament Building.....	19,468 51			19,468 51
do Post Office (New).....	64,165 67			64,165 67
do do (Temporary).....	655 45	7 10		662 55
do Powder Magazine.....	2,820 00			2,820 00
<i>North-West Territories.</i>				
Battleford Industrial School.....	3,082 00			3,082 00
do Public Buildings (Judge Rouleau's Office).....	2,433 24			2,433 24
Calgary Immigrant Station.....	4,884 55			4,884 55
High River Industrial School.....	12,990 65			12,990 65
Medicine Hat Immigrant Station.....	5,749 98			5,749 98
Prince Albert Court House.....	15 90			15 90
Public Buildings Generally.....	3,398 43			3,398 43
Qu'Appelle Immigrant Station.....	350 06	506 46		856 52
do Industrial School.....	13,136 40			13,136 40
Regina Council Chamber.....	72 00			72 00
do Court House.....	443 17	76 00		519 17
do Indian Offices.....	637 10			637 10
do Jail and Lunatic Asylum.....	12,946 86			12,946 86
do Lieutenant-Governor's Residence.....	1,418 46	300 48		1,718 94
do Post Office.....	134 07			134 07
Carried over.....	1,005,841 42	168,030 89	100,965 82	1,274,838 13

APPENDIX No. 1—*Continued.*

Name of Work.	Construc- tion.	Repairs.	Staff and Maintenance	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Brought forward.....	1,005,841 42	168,030 89	100,965 82	1,274,838 13
PUBLIC BUILDINGS—<i>Continued.</i>				
<i>British Columbia.</i>				
Albert Head Quarantine Station (Vancouver).....	8,119 98	.....	.....	8,119 98
Nanaimo Post Office, &c.....	3,510 74	.....	.....	3,510 74
New Westminster Penitentiary	22,392 48	.....	.....	22,392 48
do Post Office	268 50	294 25	.....	562 75
Victoria Custom House .....	.....	704 27	.....	704 27
do Post Office .....	.....	1,408 20	.....	1,408 20
do Savings Bank .....	.....	25 00	.....	25 00
<i>England.</i>				
London High Commissioner's House.....	703 17	.....	.....	703 17
SALARIES OF ENGINEERS, FIREMEN, &c.				
<i>Nova Scotia.</i>				
Halifax Dominion Building.....	\$2,037 00			
do Penitentiary	450 00			
<i>Prince Edward Island.</i>				
Charlottetown Dominion Building....	1,533 16			
<i>New Brunswick.</i>				
Carleton Post Office.....	152 50			
Dorchester Penitentiary	520 04			
Fredericton Post Office, &c.....	399 96			
St. John Custom House	1,721 29			
do Penitentiary	450 00			
do Post Office.....	1,140 00			
Sussex do &c.....	368 14			
Woodstock do &c.....	36 00			
<i>Quebec.</i>				
Montreal Custom House	975 00			
do Examining Warehouse.....	1,153 50			
do Inland Revenue Building....	728 00			
do Post Office	720 00			
Sherbrooke do &c.....	219 51			
St. John's do	366 58			
Three Rivers Custom House.....	699 96			
do Post Office.....	425 76			
Carried over.....	\$14,096 40	1,040,836 29	170,462 61	100,965 82
				1,312,264 72

APPENDIX No. 1—*Continued.*

Name of Work.	Con- struction.	Repairs.	Staff and Maintenance	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Brought forward..... \$14,096 40	1,010,836 29	170,462 61	100,965 82	1,312,264 72
PUBLIC BUILDINGS— <i>Continued.</i>				
SALARIES OF ENGINEERS, &c.— <i>Concluded.</i>				
<i>Ontario.</i>				
Belleville Post Office, &c.....	600 00			
Brantford do	550 00			
Chatham do	693 30			
Gananoque Custom House.....	31 00			
Guelph do &c.....	307 16			
Kingston Military College.....	1,320 00			
London Custom House	766 68			
do Post Office	540 00			
St. Catharines Post Office, &c.	399 96			
Stratford do	660 00			
Toronto Custom House.....	1,036 50			
do Examining Warehouse.....	920 16			
do Inland Revenue Building. ...	646 00			
do Post Office.....	595 00			
Windsor Post Office, &c.....	1,000 08			
<i>North-West Territories.</i>				
Regina Court House	200 00			
<i>British Columbia.</i>				
Nanaimo Post Office, &c.....	410 00			
New Westminster Post Office, &c	600 00			
Victoria Post Office.....	50 00			
			25,422 24	25,422 24
HEATING DOMINION BUILDINGS.				
<i>Nova Scotia.</i>				
Antigonish Post Office.....	43 10			
Halifax Dominion Building.....	860 00			
Pictou Custom House.....	191 35			
do Marine Hospital	28 00			
Sydney Inland Revenue Office.	15 00			
<i>Prince Edward Island.</i>				
Charlottetown Dominion Building. ...	424 41			
<i>New Brunswick.</i>				
Carleton Post Office.....	98 64			
Chatham Custom House.....	46 33			
do Post Office.....	65 88			
Fredericton do &c.....	258 50			
Carried over..... \$2,031 21	1,040,836 29	170,462 61	126,388 06	1,337,686 96

APPENDIX No. 1.—*Continued.*

Name of Work.	Con- struction.	Repairs.	Staff and Maintenance	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Brought forward.....	\$2,031 21	1,040,836 29	170,462 61	126,388 06
PUBLIC BUILDINGS— <i>Continued.</i>				
HEATING DOMINION BUILDINGS— <i>Continued.</i>				
<i>New Brunswick—Concluded.</i>				
St. John Custom House.....	1,920 11			
do Penitentiary	56 00			
do Post Office.....	554 55			
do Savings Bank.....	113 01			
Sussex Post Office, &c	310 24			
Woodstock do	94 50			
<i>Quebec.</i>				
Grenville Canal Office.....	15 00			
Hull Post Office, &c	196 25			
Lachine Canal Office.....	49 38			
Montreal Custom House.....	1,135 10			
do Examining Warehouse.....	2,184 23			
do Inland Revenue Offices	347 80			
do Post Office.....	1,081 28			
Quebec Citadel Buildings	196 73			
do Custom House	1,156 86			
do Marine Hospital	1,548 50			
do Post Office	379 10			
Sherbrooke Post Office, &c.....	297 73			
St. John's do	173 45			
St. Vincent de Paul Penitentiary.....	4,109 91			
Three Rivers Custom House.....	672 75			
do Post Office.....	5 00			
<i>Ontario.</i>				
Belleville Post Office, &c.....	384 00			
Barrie do	201 12			
Brantford Post Office, &c.....	403 89			
Brockville do	40 00			
Chatham do	310 63			
Cobourg do	37 00			
Cornwall do	139 54			
Dunnville Canal Office.....	10 00			
Ganancque Custom House.....	116 75			
Guelph do	253 71			
Hamilton Custom House	243 50			
do Post Office	645 52			
Kingston Custom House.....	520 94			
do Mills Canal Office	15 00			
do Post Office.....	172 60			
London Custom House.....	509 49			
do Post Office.....	682 59			
Perth Inland Revenue Office.....	54 97			
Port Colborne Canal Office.. ..	15 00			
Port Hope Post Office	66 00			
Port Maitland Inland Revenue Office.	10 00			
Carried over.....	\$23,460 94	1,040,836 29	170,462 61	126,388 06

APPENDIX No. 1—Continued.

Name of Work.	Con- struction.	Repairs.	Staff and Maintenance	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Brought forward..... \$23,460 94	1,040,836 29	170,463 61	126,388 06	1,337,686 96
PUBLIC BUILDINGS—Concluded.				
HEATING DOMINION BUILDINGS—Concluded.				
Ontario—Concluded.				
Prescott Custom House.....	45 00			
Smith's Falls Canal Office.....	12 00			
St. Catharines Post Office, &c	259 07			
Stratford do	401 00			
Toronto Custom House.....	1,156 57			
do Inland Revenue Building.....	418 88			
do Post Office.....	888 59			
Windsor Post Office, &c.....	670 00			
Manitoba.				
Winnipeg Architect's Office.....	94 80			
do Custom House.....	711 00			
do Inland Revenue Office.....	177 75			
do Dominion Land Office.....	1,003 00			
do Post Office.....	912 45			
North-West Territories.				
Qu'Appelle Clerk of Works' Office....	105 00			
Regina Court House	315 00			
British Columbia.				
Nanaimo Post Office, &c	100 00			
New Westminster Post Office, &c	155 99			
Victoria Custom House, &c	56 50			
do Post Office.....	218 25			
GENERALLY	611 97		31,773 76	31,773 76
HARBOURS, BREAKWATERS, &c.				
Nova Scotia.				
Benacadie Pond (dredging channel).....	1,500 00			1,500 00
Boularderie Wharf.....	2,000 00			2,000 00
Brooklyn Breakwater.....		600 00		600 00
Canada Creek Breakwater.....		747 08		747 08
Cheverie do	8,304 43			8,304 43
Chipman's Brook do	949 78			949 78
Coffin's Island do	994 70			994 70
Cow Bay do	7,107 54			7,107 54
Digby Pier		1,752 21		1,752 21
Five Islands Breakwater	2,499 94			2,499 94
Great Village River, Londonderry (straightening river)	850 00			850 00
Carried over.....	1,065,042 68	173,561 90	158,161 82	1,396,766 40

APPENDIX No. 1—Continued.

Name of Work.	Con- struction.	Repairs.	Staff and Maintenance	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Brought forward	1,065,042 63	173,561 90	158,161 82	1,396,766 40
HARBOURS, BREAKWATERS, &c.—Continued.				
<i>Nova Scotia—Concluded.</i>				
Halifax Graving Dock	29 40			29 40
Hall's Harbour	750 00			750 00
Harbours Generally	1,404 61			1,404 61
Harbourville Breakwater	1,000 00			1,000 00
Hay Cove do		250 00		250 00
Kingsport Pier (formerly Oak Point)		9 22		9 22
Mabou Harbour	1,500 00			1,500 00
Meteghan Cove		96 64		96 64
Ogilvie Wharf	2,982 01			2,982 01
Oyster Pond	527 49			527 49
Partridge Island River	800 00			800 00
Petit de Grat Inlet (dredging channel)	250 00			250 00
Port Hood Pier	5,116 80			5,116 80
Porter's Lake	200 00			200 00
Three Fathom Harbour	597 22			597 22
Tracadie (Big)	2,748 68			2,748 68
Tusket Wedge	849 98			849 98
<i>Prince Edward Island.</i>				
Annandale Wharf	2,474 25	519 97		2,994 22
Belfast do	4,355 04	460 45		4,755 49
Campbell's Cove do	100 00			100 00
China Point do	3,436 47	213 38		3,649 85
Crapaud do (Victoria Harbour)	4,267 72	953 52		5,221 24
Georgetown do	2,251 24	1,000 00		3,254 24
Harbours Generally	1,404 60			1,404 60
Hickey's Wharf	1,255 27	496 25		1,751 52
Higgin's Shore do	2,543 05	180 20		2,723 25
Hurd's Point do	2,000 62	469 41		2,470 03
Kier's Shore do	5,091 50			5,091 50
Lambert's do	486 95	1,303 51		1,790 46
Lewis Point do	2,250 00	164 43		2,414 43
Malpeque Breakwater		82 50		82 50
Mink River Wharf	293 25	405 65		698 90
Murray Harbour do		49 59		49 59
McGee's do	2,721 25	100 00		2,821 25
Nine Mile Creek do	482 00			482 00
North Cardigan do	2,732 70	360 83		3,093 53
Pinette do	1,814 00	35 20		1,849 20
Port Selkirk do	2,947 75	607 63		3,555 38
Pownal do	3,429 92	468 89		3,898 81
Red Point do	600 00			600 00
Rustico do	657 80	209 85		867 65
South River do	1,021 50			1,021 50
St. Mary's Bay do	1,336 59	341 25		1,677 84
Tignish do	125 26	102 70		227 96
Vernon River do	908 66	249 90		1,158 56
Victoria Harbour do (formerly Wood Islands)	867 90	40 00		907 90
West Point Breakwater	4,226 40			4,226 40
Carried over	1,139,893 56	182,672 87	158,161 82	1,480,728 25

APPENDIX No. 1—Continued.

Name of Work.	Con- struction.	Repairs.	Staff and Maintenance	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Brought forward	1,139,893 56	182,672 87	158,161 82	1,480,728 25
HARBOURS, BREAKWATERS, &c.—Continued.				
<i>New Brunswick.</i>				
Anderson's Hollow (Rocher Bay) Breakwater	921 49	.....	.....	921 49
Buctouche Breakwater	1,655 00	.....	.....	1,655 00
Cape Tormentine Harbour	4,419 63	.....	.....	4,419 63
Caraguet Breakwater	211 50	.....	.....	211 50
Harbours, &c., Generally	1,404 61	.....	.....	1,404 61
Hillsboro' Breakwater .....	.....	749 06	.....	749 06
Hopewell Cape, Ballast Wharf	311 41	.....	.....	311 41
Madawaska River	600 00	.....	.....	600 00
Mispec Breakwater	6,742 50	.....	.....	6,742 50
Richibucto Harbour	3,300 00	.....	.....	3,300 00
St. John Harbour	19,775 42	.....	.....	19,775 42
do River	5,312 46	.....	.....	5,312 46
St. Mary's Pier	214 22	.....	.....	214 22
Tobique River	1,025 04	.....	.....	1,025 04
West Isles (improvement of channel)	600 00	.....	.....	600 00
<i>Quebec.</i>				
Anse à l'eau Pier .....	.....	271 26	.....	271 26
Anse St. Jean Pier .....	.....	94 45	.....	94 45
Bagotville Pier (St. Alphonse)	4,680 55	.....	.....	4,680 55
Baie St. Paul Pier	4,958 78	.....	.....	4,958 78
Beloeil Piers .....	.....	69 80	117 00	186 80
Berthier (<i>en bas</i>) Pier	10,492 90	.....	.....	10,492 90
Bic Pier	9,888 67	.....	.....	9,888 67
Chateau Richer Pier	2,952 37	.....	.....	2,952 37
Chenal du Moine Pier	7 20	.....	.....	7 20
Chicoutimi Pier	2,042 11	.....	.....	2,042 11
Etang du Nord Breakwater (Magdalen Islands) ..	6,000 00	.....	.....	6,000 00
Flints Wharf, Lake Mégantic	1,712 41	.....	.....	1,712 41
Harbours, &c., Generally .....	.....	4,554 34	.....	4,554 34
Isle aux Grues—Havre Pointe aux Pins	8,702 54	.....	.....	8,702 54
Lanoraie Pier	4,823 86	.....	.....	4,823 86
Les Eboulements Pier	2,198 56	.....	.....	2,198 56
Malbaie Pier .....	.....	157 57	.....	157 57
Matane do (East)	540 97	.....	.....	540 97
New Carlisle Pier	8,393 33	.....	.....	8,393 33
Newport Pier (walls at mouth)	609 31	.....	.....	609 31
Piers below Quebec .....	.....	7,663 44	.....	7,663 44
Quebec Harbour .....	.....	433 80	.....	433 80
do Marine Hospital Wharves	1,650 14	.....	.....	1,650 14
do Queen's Wharf	13,073 12	.....	.....	13,073 12
Rivière Blanche Pier .....	.....	221 00	.....	221 00
do Bras St. Nicholas	1,220 66	.....	.....	1,220 66
do du Lièvre	2,291 55	.....	.....	2,291 55
do du Loup (<i>en bas</i>) Pier	14,060 76	.....	.....	14,060 76
do Nicolet, Harbour of Refuge	17,116 28	.....	.....	17,116 28
do Noire	999 93	.....	.....	999 93
do Ottawa (between Bristol and Clarendon) ..	2,707 73	.....	.....	2,707 73
do Ouelle Pier .....	.....	1,699 25	.....	1,699 25
do Pabos	1,070 79	.....	.....	1,070 79
do Saguenay, Channel below Chicoutimi	4,494 61	.....	.....	4,494 61
Carried over	1,313,080 97	198,586 84	158,278 82	1,669,946 63

APPENDIX No. 1—Continued.

Name of Work.	Con- struction.	Repairs.	Staff and Maintenance	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Brought forward.....	1,313,080 07	198,586 84	158,278 82	1,669,946 63
HARBOURS, BREAKWATERS, &c.—Concluded.				
<i>Quebec—Concluded.</i>				
Rivière Saguenay La Grande Décharge.....	364 32	.....	.....	364 32
do do Petite Décharge	89 00	.....	.....	89 00
do Ste. Anne de Beaupré.....	1,726 99	.....	.....	1,726 99
do St. Lawrence.....	324 40	.....	.....	324 40
do do Removal of chains and anchors	7,051 45	.....	.....	7,051 45
do St. Louis	4,853 30	.....	.....	4,853 30
do Yamachiche	999 92	.....	.....	999 92
do Yamaska	34,230 27	.....	.....	34,230 27
Sault aux Cochons Pier	4,029 61	.....	.....	4,029 61
St. Agnes Pier, Lake Mégantic.....	.....	103 50	.....	103 50
Ste. Anne de Bellevue Wharf	298 90	.....	.....	298 90
do de la Pocatière Pier	3,399 97	.....	.....	3,399 97
do de Sorel Ice Piers	1,176 53	.....	.....	1,176 53
St. François, Ile d'Orleans Pier.....	4,148 80	.....	.....	4,148 80
St. Jean do Pier.....	8,183 46	.....	.....	8,183 46
St. Thomas (Montmagny) Pier.....	862 76	.....	.....	862 76
St. Zotique Pier.....	1,290 31	.....	.....	1,290 31
Trois Pistoles Pier	1,741 19	.....	.....	1,741 19
<i>Ontario.</i>				
Bayfield Harbour.....	4,007 00	.....	.....	4,007 00
Belle River do	1,170 00	.....	.....	1,170 00
Belleville do	3,154 50	.....	.....	3,154 50
Cobourg do	22,825 98	.....	.....	22,825 98
Collingwood do	26,931 10	.....	.....	26,931 10
Goderich do	1,035 99	.....	.....	1,035 99
Harbours, &c., Generally.....	3,872 46	.....	.....	3,872 46
Kaministiquia River.....	28,973 32	.....	.....	28,973 32
Kincardine Harbour.....	3,069 38	.....	.....	3,069 38
Kingston do	7,694 96	.....	.....	7,694 96
Kingsville do	20,348 03	.....	.....	20,348 03
Lion's Head Breakwater.....	1,775 35	.....	.....	1,775 35
Little Bear Creek.....	2,494 00	.....	.....	2,494 00
Little Current, Lake Huron.....	10,042 14	.....	.....	10,042 14
L'Orignal Wharf.....	909 69	.....	.....	909 69
Meaford Harbour.....	2,025 50	.....	.....	2,025 50
Morpeth do	13,866 03	.....	.....	13,866 03
Newcastle do	3,511 07	.....	.....	3,511 07
Owen Sound do	9,596 50	.....	.....	9,596 50
Port Albert do	1,064 30	.....	.....	1,064 30
do Arthur do	63,133 65	.....	.....	63,133 65
do Elgin do	7,308 49	.....	.....	7,308 49
do Hope do	5,089 57	.....	.....	5,089 57
do Stanley do	1,000 00	.....	.....	1,000 00
River Ottawa, Narrows above Pembroke.....	2,386 56	.....	.....	2,386 56
do survey between Mattawan and Lake Temiscamingue.....	6,825 16	.....	.....	6,825 16
River Sydenham.....	2,499 90	.....	.....	2,499 90
Rondeau Harbour.....	2,359 18	.....	.....	2,359 18
Sault Ste. Marie, St. Mary's River.....	4,444 50	.....	.....	4,444 50
Carried over.....	1,651,266 46	198,690 34	158,278 82	2,008,235 62

APPENDIX No. 1.—*Continued.*

Name of Work.	Con- struction.	Repairs.	Staff and Maintenance	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Brought forward	1,651,266 46	198,690 34	158,278 72	2,008,235 62
HARBOURS, BREAKWATERS, &c.— <i>Continued.</i>				
<i>Ontario—Concluded.</i>				
Southampton Harbour, Lake Huron.....	10,132 98	.....	.....	10,132 98
Thornbury do do	1,034 94	.....	.....	1,034 94
Toronto do do	114,439 45	.....	.....	114,439 45
Wilson's Channel (removal of rock)	4,642 48	.....	.....	4,642 48
<i>Manitoba.</i>				
Assiniboine River.....	15 00	.....	.....	15 00
Harbours Generally	988 60	.....	.....	988 60
Waterhen River.....	9,816 68	.....	.....	9,816 68
<i>North-West Territories.</i>				
Saskatchewan River	6,567 00	.....	.....	6,567 00
<i>British Columbia.</i>				
Cowichan River	708 04	.....	.....	708 04
Esquimalt Graving Dock.....	45,582 18	.....	.....	45,582 18
Fraser River.....	4,802 74	.....	.....	4,802 74
Nimkish River.....	999 63	.....	.....	999 63
Serpentine do	45 50	.....	.....	45 50
Victoria Harbour	8 25	.....	.....	8 25
HARBOURS AND RIVERS GENERALLY.....	.....	.....	5,607 18	5,607 18
Dredge vessels.....	21,424 70	26,939 59	.....	48,364 29
DREDGING.				
<i>Nova Scotia.</i>				
Campbell's Pond.....\$	602 30	.....	.....	.....
Christmas Island.....	2,322 00	.....	.....	.....
Descoussé	2,634 31	.....	.....	.....
Hawkesbury Marine Slip, &c.	39 01	.....	.....	.....
Lunenburg	2,048 91	.....	.....	.....
Mabou Harbour.....	2,330 91	.....	.....	.....
Port Hastings	146 35	.....	.....	.....
Port Mulgrave	743 95	.....	.....	.....
River John.....	2,190 38	.....	.....	.....
Whycocomagh	2,409 18	.....	.....	.....
	\$15,467 30	.....	.....	.....
<i>Prince Edward Island.</i>				
Hurd's Point	5,126 82	.....	.....	.....
Summerside	2,072 56	.....	.....	.....
	7,199 38	.....	.....	.....
Carried over.....	\$22,666 68	1,872,474 63	225,629 93	163,886 00
		16		2,261,990 56

APPENDIX No. 1—*Continued.*

Name of Work.	Con- struction.	Repairs.	Staff and Maintenance	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Brought forward.....\$22,666 68	1,872,474 63	225,625 93	163,886 00	2,261,990 56
DREDGING—Continued.				
New Brunswick.				
Miramichi River — Grande Dune	7,917 01			
Miramichi River—Outer Bar	1,311 67			
River St. John—Gibson.....	501 60			
do Jemseg (at mouth)...	1,501 93			
do Oromocto Sheds ...	3,580 15			
do St. Mary's Ferry	458 72			
St. John Harbour — Indian-town Wharf	155 64			
do Long Wharf.	1,488 01			
do Murray Mills.	300 77			
do Navy Island.	2,097 82			
	19,333 32			
Total, Maritime Provinces.....	42,000 00			
Quebec.				
Laprairie Harbour	2,303 03			
Rimouski do	3,997 59			
Rivière à la Grasse (Rigaud)	1,594 56			
River Batiscan	998 20			
do Richelieu	2,315 95			
do St. François.....	4,440 96			
do St. Lawrence	1,208 45			
do St. Louis	40 75			
do St. Maurice.....	1,049 55			
Ste. Anne de Bellevue.....	480 16			
Generally	410 57			
	18,839 77			
Ontario.				
Goderich Harbour.....	504 21			
L'Orignal do	338 59			
Meaford do	318 25			
Napanee River	6,745 17			
Ottawa River (at Ottawa)...	1,007 25			
Shannonville Harbour	3,499 12			
Toronto do	2,639 32			
Walkerville do	853 72			
Generally.....	3,989 75			
	19,895 38			
Manitoba.				
Red River.....	9,965 89			
Carried over.....\$9,701 04	1,872,474 63	225,629 93	163,886 00	2,261,990 56

APPENDIX No. 1—*Concluded.*

Name of Work.	Con- struction.	Repairs.	Staff and Maintenance	Total.	
	\$ cts.	\$ cts.	\$ cts	\$ cts.	
Brought forward	\$90,701 04	1,872,474 63	225,629 93	163,886 00	2,261,990 56
DREDGING—Concluded.					
<i>British Columbia.</i>					
Fraser River.....	5,750 26				
Victoria Harbour	11,974 51				
	17,724 77				
GENERAL SERVICE	4,913 34				
	113,339 15				113,339 15
[SLIDES AND BOOMS.					
Saguenay District Works.....	7,684 02	805 90	943 28		9,433 20
St. Maurice do	896 47	6,103 62	17,092 03		24,092 12
do do Grandes Piles Booms.....	10,646 48				10,646 48
Ottawa do			22,109 75		22,109 75
Ottawa River Slides.....	9,532 24	1,080 73			1,080 73
Gatineau do	653 31	155 00			155 00
Madawaska do	4,424 79	6,470 75			6,470 75
Black do	140 97				
Coulonge do	1,321 22	8,947 69			8,947 69
Petewawa do	1,269 86	1,650 70			1,650 70
		17,342 39			17,342 39
River Morasse Slides	994 15				994 15
Newcastle District Works		4,468 68	2,244 08		6,712 76
ROADS AND BRIDGES.					
Ile aux Noix Road.....		337 37			337 37
L'Assomption Bridge		40 05			40 05
St. David de Lévis Bridge.....		10 00			10 00
Portage du Fort Bridge	4,765 24				4,765 24
Temiscouata Road		1,061 15			1,061 15
Des Joachims Bridge.....	13,894 52				13,894 52
Dundas and Waterloo Road			35 46		35 46
TELEGRAPH LINES.					
<i>New Brunswick.</i>					
Chatham to Escuminac	4,152 62				4,152 62
<i>Quebec.</i>					
North Shore, St. Lawrence—Pentecost to Mingan.	16,493 44				16,493 44
do do Quebec to Grosse Isle	10,129 67				10,129 67
<i>North-West Territories.</i>					
Battleford to Edmonton (Main Line)	10,275 20				10,275 20
Edmonton to Saskatchewan.....	753 97				753 97
Edmonton to St. Albert.....	1,313 86				1,313 86
Telegraph Lines generally.....			21,837 24		21,837 24
<i>British Columbia.</i>					
Vancouver Island and Washington Territory.....	4,027 19				4,027 19
Telegraph Lines Generally			34,355 32		34,355 32
Carried forward	2,030,145 48	255,799 09	262,503 16		2,608,417

APPENDIX No. 1.—*Concluded.*

Name of Work.	Con- struction.	Repairs.	Staff and Maintenance	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Brought forward.....	2,090,145 48	255,799 09	262,503 16	2,608,447 73
TELEGRAPH LINES—<i>Concluded.</i>				
LAND and CABLE Telegraph Lines, Lower St. Law- rence and Maritime Provinces.....	.....	.....	14,576 54	14,576 54
Telegraph Service Generally.....	2,852 47	11,505 58	.....	14,358 05
MISCELLANEOUS.				
Surveys.....	.....	.....	31,203 26	31,203 26
Arbitrations.....	.....	.....	3,059 27	3,059 27
Monument to Sir Geo. Et. Cartier, Bart.....	8,294 19	.....	.....	8,294 19
Agent and Contingencies, British Columbia.....	.....	.....	2,685 31	2,685 31
Totals	2,101,292 14	267,304 67	314,027 54	2,682,624 35
WORKS AUTHORIZED BY SPECIAL ACTS OF PARLIAMENT.				
St. Lawrence River, deepening between Quebec and Montreal.....	300,000 00	.....	.....	300,000 00
Quebec Harbour Improvement.....	282,931 00	.....	.....	282,931 00
Levis Graving Dock	110,000 00	.....	.....	110,000 00
Totals	692,931 00	.....	.....	692,931 00
Grand Totals.....	2,794,223 14	267,304 67	314,027 54	3,375,555 35

O. DIONNE,
Accountant.

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, 13th October, 1885.

APPENDIX No. 2.

REPORT

ON

PUBLIC BUILDINGS

THROUGHOUT THE DOMINION,

FOR FISCAL YEAR ENDED 30TH JUNE, 1885.

BY

THOS. FULLER, CHIEF ARCHITECT,

APPENDIX No. 2.

REPORT OF THE CHIEF ARCHITECT.

Ref. No. 62,424.

DEPARTMENT OF PUBLIC WORKS,

OTTAWA, 16th October, 1885.

SIR,—I have the honour to submit a General Report upon construction and repairs, in connection with the various public buildings under the control of this Department, during the fiscal year ended 30th June, 1885.

I have the honour to be, Sir,

Your obedient servant,

THOMAS FULLER,

Chief Architect.

A. GOBEL, Esq.,
Secretary Dept. Public Works.

PROVINCE OF NOVA SCOTIA.

AMHERST.

PUBLIC BUILDING.

Plans and specifications were completed and approved, and on the 17th September, 1884, a contract was entered into for the construction of this building on a portion of the property known as the Court House Lot, the site being given by the town.

The main building has a frontage of 61 feet and a depth of 40 feet. The basement is to contain the heating furnaces, fuel room and storage; the ground floor the Post Office and offices for the Intercolonial Railway Solicitor; the first floor the Customs and Inland Revenue Offices and the Savings Bank; and the attic the Caretaker's apartments, &c. In the rear are two one-story extensions, one for the Examining Warehouse, the Weights and Measures Office and the W. C's., and the other for the clerks of the Post Office.

The outer walls are to be red sandstone, random coursed and with cut dressings of same material; the floors, roofs and partitions to be of wood; the roofs covered with slate and galvanized iron.

The main feature in the centre of the front is a large stone dormer surmounted by a wooden clock-tower with four dials.

Plans, &c., prepared and work supervised by this Department.

Clerk of Works, Mr. Geo. Thomson.

Contractors, Messrs. Rhodes & Currie.

BADDECK.**POST OFFICE, &C., BUILDING.**

Plans and specifications were completed and approved for this building, and a contract was entered into on 20th June, 1885. The building is being erected at the corner of Main and Campbell streets, comprises two stories and basement, main portion 52 feet 6 inches by 24 feet 6 inches. The walling is to be of rubble sandstone with cut dressings; the partitions, floors and roofs of wood; the last mentioned covered with slate, excepting the turret roof, which is to be of galvanized iron.

The basement is for the Examining and Bonded Warehouse, the ground floor for the Post Office and the Custom House, and the first floor the Inland Revenue, and three rooms for the Caretaker.

Plans and specifications prepared and work supervised by this Department.

Clerk of Works, Mr. Neil W. Mackenzie.

Contractor, Mr. R. H. Hill.

NEW GLASGOW.**PUBLIC BUILDING.**

My report of last year contains a description of this building, which is now in progress and will probably be completed before the close of next fiscal year.

Plans, &c., prepared by this Department.

Clerk of Works, Mr. Donald Grant.

Contractor, Mr. James Strachan.

NORTH SYDNEY.**POST OFFICE, &C., BUILDING.**

A site on the north side of Main street, and adjoining the Western Union Telegraph Company's property, was purchased on 22nd August, 1884, from Mr. Robert Musgrove (it has a frontage of 75 feet on Main street and a depth of 100 feet), and plans for a building to accommodate the Post Office, Customs and Inland Revenue Offices are now in course of preparation in this Department.

TRURO.**POST OFFICE, CUSTOM HOUSE AND INLAND REVENUE OFFICE.**

Building described in my report for 1883-84.

The works were carried on steadily, and completion and occupation is looked for this autumn.

A hot-water apparatus is now being placed in the building.

Plans, &c., prepared by this Department.

Clerk of Works, Mr. S. S. Crowe.

Contractors for building, Messrs. Townsend & McKay.

Contractor for heating apparatus, Mr. E. Chanteloup.

WINDSOR.**PUBLIC BUILDING.**

My report of last year contains a description of this building, which has since been in steady progress, and is expected to be completed and occupied this autumn.

A hot-water heating apparatus is being placed in the building.

Plans, &c., prepared by this Department.

Clerk of Works, Mr. Robert Sutherland.

Contractor for the building, Mr. J. McIntosh.

Contractor for the heating apparatus, Mr. E. Chanteloup.

YARMOUTH.

PUBLIC BUILDING.

Plans and specifications were prepared and approved for this building, which is to be erected on the corner of John and Main streets, and a contract was entered into on the 21st May, 1885. The main building has a frontage of 42 feet 6 inches and depth of 36 feet. The basement will contain furnace room, fuel rooms and storage, the ground floor the Post Office, the first floor the Customs, Inland Revenue and Savings Bank offices, the attic the Caretaker's apartments. A one-story wing is for the Weights and Measures Office and W. C's.

The external walls are to be of brick, with cut stone dressings; the partitions, floors and roofs of wood; the roofs covered with slate and galvanized iron.

Plans, &c., prepared by this Department.

Clerk of Works, Mr. J. B. Kenney.

Contractors, Messrs. A. E. Milliken & Co.

PROVINCE OF PRINCE EDWARD ISLAND.

CHARLOTTETOWN.

DOMINION BUILDING.

The plans and specifications were completed and approved for this building, which is to be erected on the site of that destroyed on the night of 20th February, 1884, by fire. The main building is 92 feet by 60 feet, with an annex 56 feet by 25 feet. It is to be built of brick with stone dressings, and a mansard roof, the floors and roof being of wood, the latter covered with slates and galvanized iron.

The general design is bold, simple and effective. The roof is broken on the eastern front and on each side by a central gable, with dormers on either side.

The basement is for the heating apparatus, fuel room and store rooms; the ground floor for the Post Office, the Savings Bank, and the Weights and Measures; the first floor the Customs, Inland Revenue and Marine Offices, and the attic the Housekeeper, Landing, and Tide Waiters, &c.

Brick vaults for the various Departments, those for Savings Bank lined with steel, are furnished on the two principal floors.

Plans, &c., prepared by this Department.

Superintending Architects, Messrs. Stirling and Harris.

Clerk of Works, Mr. Chas. Dalziel.

Contractor, Mr. T. C. Connor.

MONTAGUE.

POST OFFICE.

On the 25th May, 1885, a site was obtained from Mr. Montague Muttart, at Cape Traverse Cove, being a plot of shore measuring 76 feet 6 inches by 103 feet, a portion of lot 28, P.E.I.

Drawings and specifications for a building on this site are now being prepared.

SUMMERSIDE.

PUBLIC BUILDING.

This building, which was fully described in my report for 1883-84, is in the course of construction, and will probably be completed and occupied about November or December.

Plans were prepared, &c., and a contract entered into on 26th of last March for a hot-water apparatus to heat the building.

Plans, &c., by this Department.

Superintending Architect, Mr. D. Stirling.

Clerk of Works, Mr. Richard M. Hunt.

Contractor for building, Mr. Pierce Doyle.

Contractors for heating apparatus, Messrs. McKinnon & McLean.

PROVINCE OF NEW BRUNSWICK.

BATHURST.

POST OFFICE, &c., BUILDING.

Plans and specifications were completed and approved.

A contract was entered into on 20th November, 1884, for the construction of this building, on the corner of Water and Douglas streets. It has a frontage of 47 feet and a depth of 37 feet. The basement is for heating and storage; the ground floor for the Post Office; the first floor for Custom House, Inland Revenue, Savings Bank and Pilot Commissioners; and the attic for Caretaker's apartments; and the one story annex, 16 feet by 60 feet, is for Examining Warehouse and Weights and Measures.

The outside walls of the main building are faced with sandstone from the neighbourhood, with cut-stone dressings; the rear building is faced with red brick.

The floors, partitions and roofs are of wood, the last mentioned covered with slate and galvanized iron.

The design is bold, the details being of the most simple character. The windows and door openings have semi-circular heads. A large stone dormer adds to the effect of the main frontage, and a low tower on the east side, in which are four clock faces, renders the outline pleasing.

Plans and specifications prepared and work supervised by this Department.

Clerk of Works, Mr. Henry White.

Contractor, Mr. John Black.

CARLETON (ST. JOHN).

POST OFFICE.

My report of 1882-83 contains a description of this building, which is completed and furnished.

Plans, &c., prepared by this Department.

Work commenced under the superintendence of Mr. D. E. Dunham, Architect, and at his decease placed in charge of Mr. H. H. Mott, Architect.

Clerk of Works, Mr. C. F. Tilley.

Contractors, Messrs. Causey, Bond & Milden.

DORCHESTER.

GENERAL PENITENTIARY FOR THE MARITIME PROVINCES.

During the summer of 1884 the walls of cell wing were carried up to the third tier of cells, and covered in. In the spring of 1885 work was resumed and carried on with sufficient rapidity to warrant the hope that it will be roofed this autumn.

During the fiscal year 1884-5 the following works were carried out:—

The factory, which was fitted up with the machinery of the old Penitentiary at St. John, N.B., is now in running order.

A new blacksmith shop 40 feet by 25 feet, having two forges and a fitting or machine shop adjoining, were erected; both of wood, with brick chimneys. The latter contains a portable engine, two large lathes, an iron planer, a bolt cutter, travelling crane, &c., &c.

Two dry houses were built for the factory.

A shingle mill, a two-story wooden annex to factory was erected and fitted up.

A wooden building 36 feet by 25 feet, for Public Works stores, was erected outside the entrance gateway.

Hose houses furnished with reels, hose hooks, buckets, &c., &c., were erected, one in the prison yard, and one at the Guard's cottage. A portion of the Warden's residence was fitted and furnished as a hose house, and the prison building fully supplied with hose, buckets, &c., &c.

New porches in front and rear, and bridges over ditch were provided for each of the Guard's cottages.

The plumbing of the prison building throughout was altered, added to and made efficient.

Extensive repairs to woodwork, plastering and painting of the Administrative Block, have been executed, especially to the quarters of the Deputy Warden and of the Matron, both of which have also been extensively papered and painted.

Repairs have been made to prison roof, to the carpentry, painting, plumbing, &c., of hospital, laundry, factory and guard houses; also to the machinery, cell locks, fence wall, tanks, &c.

Plans, &c., prepared by this Department.

Superintending Architect, Mr. G. E. Fairweather.

Clerk of Works, Mr. J. E. Turnbull.

Superintendent of Masonry, Mr. H. J. McGrath.

Contractor for cell wing and boiler house, Mr. D. A. Duffy.

MONCTON.

PUBLIC BUILDING.

This building, which was fully described in my report of last year, is well advanced, and is expected to be completed and occupied this autumn.

Plans and specifications were prepared and a contract for a hot water heating apparatus entered into on 11th April, 1885.

Plans, &c., prepared by this Department.

Superintending Architect, Mr. G. E. Fairweather.

Clerk of Works, Mr. E. Milliken.

Contractor for the building, Mr. G. J. O'Doherty.

Contractors for heating apparatus, Messrs. Wisdom & Fish.

NEWCASTLE.

PUBLIC BUILDING.

Plans and specifications were completed and approved for this building, which has frontages on Water, Henry and King streets, and the contract was entered into on the 6th August, 1884.

The building is being erected of native sandstone in random coursed work, with quoins, plinths, string courses, window dressings and dormer windows of cut stone from same quarry.

The main building has a frontage of 51 feet on Water street and 47 feet on Henry street. The basement is for the furnace room, fuel room and water tank; the ground floor for the Post Office purposes, the first floor for the Customs and Inland Revenue Offices, and the attic apartments for the caretaker. A one story extension, reaching along Henry street to King street, measuring 44 feet long

by a mean breadth of 26 feet, is for the Examining Warehouse, Weights and Measures Office and W. C's.

Drawings and specifications prepared and work supervised by this Department.

Clerk of Works, Mr. Thos. Maltby.

Contractors, Messrs. Macdonald & Treen.

ST. JOHN.

MARINE HOSPITAL.

The works referred to in my previous reports have been carried out, and the building is now ready for occupation.

Plans prepared and work superintended by Mr. D. E. Dunham, Architect, until his decease, when Mr. H. H. Mott, Architect, was appointed to superintend the completion.

Clerk of Works, Mr. C. F. Tilley.

Contractors for the building :

First contractor, Mr. Wm. Lawler.

Second contractor, Messrs. Bond & Milden.

Contractors for heating apparatus, Messrs. Campbell & Ellis.

ST. STEPHENS.

PUBLIC BUILDING.

Plans and specifications were completed and approved for this building, to be erected on Water street, the site having a frontage of 90 feet, and extending back to low water mark in the St. Croix River.

A contract was entered into on 1st June, 1885.

The building has a frontage of 61 feet, by a depth of 32 feet. The main portion is to have a basement for the furnace rooms, fuel rooms, Bonded Warehouse and W.C's.; a ground floor for the Post Office; a first floor for the Customs and Inland Revenue Offices, and an attic for the Caretaker's apartments. The annex is to be one story and basement—the Examining Warehouse in the former and the Bonded Warehouse in the latter.

The building is to be of brick, with plinth, string courses and dressings of cut stone; the roof and floors to be wood, the former covered with slate and galvanized iron.

Plans and specifications prepared by this Department.

Clerk of Works, Mr. D. F. Maxwell.

Contractor, Mr. John Macpherson.

WOODSTOCK.

POST OFFICE, CUSTOM HOUSE, &c.

Building is virtually completed and is now being fitted up, furnished and supplied with a heating apparatus.

Since my last report it was decided to add a clock tower, which was placed on the apex of the main roof.

Drawings and specifications prepared by this Department.

Works commenced under superintendence of Mr. D. E. Dunham, at whose decease Mr. H. N. Black was appointed Superintending Architect.

Clerk of Works, Mr. J. F. Fletcher.

Contractor for building and fittings, Mr. J. Limerick.

Contractors for heating apparatus, Messrs. Wisdom & Fish.

PROVINCE OF QUEBEC.

MONTREAL.

DRILL HALL.

Described in my last report, and nearly complete in December last.
Plans, &c., prepared by this Department.
Superintending Architect, Mr. A. Raza.
Clerk of Works, Mr. A. Lapierre.
Contractors for masonry, Messrs. J. B. St. Louis & Bro.
Contractor for iron roof, Mr. W. Hendrie.

EXAMINING WAREHOUSE.

The works referred to in my last report are completed.
Superintending Architect, Mr. James Nelson.
Clerk of Works, Mr. C. Dandelin.
Contractors for floors, Messrs. Cousineau & Valiquette.
Contractor for additions, Mr. John Black.

QUEBEC.

DRILL HALL.

A description of this building is contained in my report of last year.
The work is in course of construction, considerable progress having been made.
Plans prepared and work superintended by Mr. E. E. Taché, Architect.
Clerk of Works, Mr. W. J. Peters.
Contractors, Messrs. Costolow & Lortie.

EXAMINING WAREHOUSE.

Building completed.
A contract was entered into 12th May, 1885, for the construction of an engine, boilers, and hoist, which are to be completed during this autumn.
Plans for a steam heating apparatus in connection with the above mentioned boiler are being prepared, and tenders will be called for at an early date.
Plans, &c., prepared by this Department.
Superintending Architect, Mr. F. X. Berlinquet.
Clerk of Works, Mr. Pierre Gauthier.
Contractor of building, Mr. Denis O'Brien.
Contractors for hoist, &c., Messrs. Carrier, Laine & Co.

SHERBROOKE.

POSTOFFICE, CUSTOM HOUSE AND INLAND REVENUE OFFICES.

This building is now completed, furnished, fitted up, supplied with a hot-water heating apparatus, and occupied.
Tenders are about to be invited for grading, retaining walls and stone steps.
Plans, &c., prepared by this Department.
Superintending Architect, Mr. F. X. Berlinquet.
Clerk of Works for masonry, Mr. R. Richards, and for carpentry, &c., Mr. J. Low.
First contractors for construction of building, Messrs. Robillard & Murphy.
Second contractor for construction of building, Mr. G. G. Bryant.
Contractors for heating apparatus, Messrs. Garth & Co.

ST. VINCENT DE PAUL.

PENITENTIARY.

The main sewer and the dining hall, referred to in my two previous reports, were completed.

The Keepers' hall, 60 feet by 60 feet, was commenced and carried up 20 feet.

Three wooden sheds, 30 feet by 20 feet, were built in the prison yard.

A table and a stand was provided in each of the 264 dormitory cells.

Eave troughs were provided and fixed to the prison main building, the engine house floor was flagged and the steam pump and engine repaired, the Deputy Warden's galleries and his wood shed were re-shingled and a new fence put around his garden, in the brickyards the racks, &c., were repaired.

Plans, &c., prepared by and work superintended by Mr. John Bowes, Architect.

SOREL.

PUBLIC BUILDING.

Plans and specifications were completed and approved, and a contract for the construction of this building, which is to be erected on the corner of Prince and George streets, was entered into on 26th July, 1884, since which date the works have progressed without intermission, and it is expected that the building will be roofed in during this autumn.

The building has a frontage of 72 feet each on Prince and George streets, the main portion having a depth of 36 feet. The basement contains the heating furnace, fuel and stores; the ground floor the Post Office, Examining Warehouse and Weights and Measures office; the first floor the Custom House and Inland Revenue Offices, and the attic store rooms and Caretakers apartments. There will be brick safes, lavatories, and W. C's. on each floor.

The external walls throughout are to be faced with limestone, random coursed, with cut limestone dressings. The ground floor windows and the entrance doorway have semicircular heads, boldly treated.

The tower, under which is the main entrance, is placed on the angle formed by the two streets. On either side are the principal stairways, and provision is made for a clock with four dials. The floors and roof are to be wood, the latter covered with slate and galvanized iron.

Plans, &c., prepared by this Department.

Superintending Architect, Mr. L. Z. Gauthier.

Clerk of Works, Mr. J. A. Chenevert.

Contractor, Mr. Geo. Beaucage.

THREE RIVERS.

POST OFFICE

This building is completed, fitted up, furnished, supplied with a hot-water heating apparatus, and occupied.

Plans, &c., prepared by this Department.

Superintending Architect, Mr. O. Z. Hamel.

Contractor for the heating apparatus, the Hydro Caloric Association.

PROVINCE OF ONTARIO.

AMHERSTBURG.

POST OFFICE, CUSTOM HOUSE, &c.

Building described in my report of last year, since which time the building has been in progress, and it is expected that it will be ready for occupation during this autumn.

Plans, &c., prepared by this Department.
Superintending Architect, Mr. Wm. Scott.
Clerk of Works, Mr. M. Twomey.
Contractor, Mr. Patrick Navin.

BARRIE.

POST OFFICE, &c.

This building, which was described in my report for 1883-84, has been carried on continuously during this fiscal year, and is expected to be completed and occupied before the close of the fiscal year 1885-86.

Plans, &c., for a new hot-water heating apparatus are in course of preparation.
Architects, Messrs. Kennedy, Gaviller & Holland.
Clerk of Works, Mr. Edward Byrne.
Contractor, Mr. Wm. Toms.

BROCKVILLE.

POST OFFICE, CUSTOM HOUSE AND INLAND REVENUE OFFICES.

Works in construction of the building are progressing tardily, but are expected to be completed this autumn. Contracts are entered into for fitting and furnishing, and for the construction of a hot-water heating apparatus.

Plans, &c., prepared and works supervised by this Department.
Clerk of Works, Mr. George Steacy.
Contractors for construction of building, Messrs. Tompkins & Crain.
Contractor for fittings, Mr. John S. Mix.
Contractors for heating apparatus, Messrs. J. & J. Blackmore.

CLIFTON.

POST OFFICE, &c.

Building completed, and is being fitted up, furnished and supplied with a hot-water heating apparatus.

Plans, &c., prepared and work supervised by this Department.
Clerk of Works, Mr. J. B. Jones.
Contractor for building and fittings, Mr. J. E. Askwith.
Contractor for heating apparatus, Messrs. Garth & Co.

COBOURG.

POST OFFICE, CUSTOM HOUSE, &c.

The works referred to in my two last reports are now about completed, and the Post Office portion of the building can shortly be occupied.

Plans, &c., prepared by this Department.
Clerk of Works, Mr. S. Retallack.
Contractor, Mr. W. Battell.

CORNWALL:

POSTAL, CUSTOMS AND INLAND REVENUE OFFICES.

Building completed, a hot-water heating apparatus put in, and the fittings and furniture in course of completion.

Plans, &c., prepared by this Department.

Superintending Architect, Mr. J. J. Browne.

Clerk of Works, Mr. Wm. Aitcheson.

Contractor for the building and fittings, Messrs. Gordon & Ross.

Contractor for heating apparatus, Messrs. Garth & Co.

GALT.

PUBLIC BUILDING.

Plans and specifications were completed and approved, and on the 15th November last a contract for the erection of the building was entered into.

The main building has a frontage of 51 feet, by a depth of 39 feet, and comprises a basement, two stories and an attic. The Examining Warehouse, one story in height, is at one end, and the principal stairway and tower at the other.

The bonded goods, Weights and Measures and heating apparatus and fuel, are placed in the basement; the Post Office and Examining Warehouse on the ground floor; the Customs and Inland Revenue Offices on the first floor, and the apartments for the Caretaker in the attic. Vaults are provided on the ground and first floors for the various Departments. The walls are faced externally with random-coursed stone of the neighborhood, with cut-stone dressings, from Guelph; the floors and roof are of wood, the latter covered with galvanized iron and slate. At the north end is a square tower, with pyramidal roof, and having four clock dials.

Plans and specifications prepared and work supervised by this Department.

Clerk of Works, Mr. George J. Jaffreys.

Contractor, Mr. M. A. Pigott.

GANANOQUE.

CUSTOM HOUSE.

The heating apparatus referred to in last year's report has been put in.

Contractors, Messrs. Garth & Co.

HAMILTON.

POST OFFICE, &C.

This building is roofed in, the interior joiners work is being put in, a hot-water heating apparatus is in course of construction, and drawings are being prepared for the internal fittings.

Plans, &c., prepared and work supervised by this Department.

Clerk of Works, Mr. George Sharpe.

Contractor for construction of building, Messrs. Van Allan, Brown & Love.

Contractor for heating apparatus, Messrs. J. & J. Blackmore.

KINGSTON.

POST OFFICE.

Plans were prepared and a contract entered into 16th March, 1885, for the construction of a hot-water heating apparatus, which is now being put in.

Plans, &c., prepared by this Department.

Superintending Architects, Messrs. Power & Son.

Contractor, Messrs. J. & J. Blackmore.

PENITENTIARY.

The following works were carried out during the fiscal year 1884-85:—

Completion of portions of heating apparatus, and of water service referred to in my last report.

Completion of west wharf, referred to in last report.

A stone gasometer pit was built, 13 feet deep and 50 feet by 50 feet, lined inside with cut ashlar, and the bottom concreted.

A 6 feet high board fence, 2,186 feet long, was built to enclose the farm and quarry.

A kitchen and pantry was added to the Deputy Warden's quarters.

The West Lodge, containing two residences for guards, was out of repair, and also damp; the ground floor was taken out and replaced by a new one, a cellar was formed and the interior fitted up, painted and papered.

New W.C's were put in, one each at the Warden's, Deputy Warden's and Accountant's quarters, and two, also an enamelled bath, in the female prison.

The Matron's yard was laid with 6-inch flagging, and cellar floored with Portland cement.

The Deputy Warden's quarters were painted and papered.

The prison boundary wall was grouted with Portland cement.

Smaller repairs to the building generally.

Plans, &c., prepared by and work superintended by Mr. John Bowes, Architect.

LONDON.

CUSTOM HOUSE ENLARGEMENT.

Plans and specifications were prepared, a contract was entered into, 28th March, 1885, for an extension of this building to provide necessary additional accommodation for the Customs, Excise and Weights and Measures.

The extension is being carried out by the demolition of the wing containing the Examining Warehouse and lengthening the main building 55 feet on Queen's avenue the whole width (50 feet). To affect this it became necessary to purchase additional strips of land on northern and eastern sides of the original property, 15 feet wide on Richmond street and 20 feet on Queen's avenue.

This extension will be similar in detail, height, number of stories, &c., to the original building. The extension will afford, on the ground floor, an Examining Warehouse, two rooms for the Weights and Measures, and an extension of the Inland Revenue Long Room, on the first floor the Customs Long Room, Customs Clerk's office, Gas Inspectors's office, and an office for Inland Revenue Clerk; on the second floor store rooms for Customs and Inland Revenue Departments, and rooms of Caretaker; the attic to be left unfinished.

Architects, Messrs. Durand & Moore.

Contractor, Mr. Patrick Navin.

OTTAWA.

NEW DEPARTMENTAL BUILDING, WELLINGTON STREET.

This building has not progressed as rapidly as was expected. The sub-basement and the greater portion of the basement are completed, and sufficient stone is cut to finish up to the ground floor level.

Plans, &c., prepared and works superintended by this Department.

Clerk of Works, Mr. J. W. Imlay.

Contractor, Mr. A. Charlebois.

MONUMENT TO THE LATE SIR GEORGE E. CARTIER, BART.

A plain pedestal of grey Stanstead granite was erected in the grounds at the right of the Parliament House, and the bronze statute, referred to in my previous reports, placed upon it.

Plans prepared by this Department.

Contractor, Mr. R. Forsyth.

PARLIAMENT BUILDINGS.

Essential cleaning, painting, repairs, &c., were effected in connection with the various offices throughout the building.

PARLIAMENT GROUNDS, &c.

These have been maintained efficiently.

EASTERN BLOCK, DEPARTMENTAL BUILDING.

Necessary repairs, furnishing, fitting, cleaning, painting, &c., were executed under the superintendence of this Department.

WESTERN BLOCK, DEPARTMENTAL BUILDING.

Essential repairs, cleaning, &c., have been effected.

Work executed under the superintendence of this Department.

RIDEAU HALL.

The usual annual cleaning, partial repainting, repapering, whitewashing, distempering, minor alterations and repairs were done to the Government House and the various buildings in connection therewith, together with repairs to furniture under the superintendence of this Department.

POST OFFICE.

The Post Office ceiling and the walls and ceilings of the corridors and stair cases were cleaned and colored in calomine, and the woodwork of stairways painted.

PORT HOPE.

POST OFFICE, CUSTOM HOUSE, &c.

This building is now nearly completed; contracts for fittings, furniture and heating apparatus are entered into, and the building will probably be ready for occupation this autumn.

Plans, &c., prepared and work supervised by this Department.

Clerk of Works, Mr. Jos. G. King.

Contractor for building, fittings and furniture, Mr. Wm. Toms.

Contractor for heating apparatus, Mr. E. Chanteloup.

ST. THOMAS.

POST OFFICE, CUSTOM HOUSE, &c.

Building completed, and is being fitted, furnished and supplied with a hot-water heating apparatus.

Plans, &c., prepared by this Department.

Superintending Architect, Mr. Edwin Ware.

Clerk of Works, Mr. Thos. Askell.

Contractor for building and fittings, Mr. Henry Lindop.

Contractor for heating, Messrs. J. & J. Blackmore, of St. Thomas.

STRATFORD.

POST OFFICE, CUSTOM HOUSE AND INLAND REVENUE OFFICES.

The addition of a clock tower having been decided upon, an ornamental one, having four dials, was erected on the roof in the centre of the principal front.

Plans, &c., prepared by this Department.

Superintending architect, Mr. J. R. Kilburn.

Clerk of Works, Mr. Wm. Roberts.

Contractor, Mr. M. A. Woods.

TORONTO.

EXAMINING WAREHOUSE.

Building described in last year's report. Works completed and the building occupied in January, 1885.

Plans, &c., prepared and work supervised by Mr. D. B. Dick, Architect.

Clerk of Works, Mr. Wm. L. Beale.

Contractors, Messrs. Brown & Love.

PROVINCE OF MANITOBA.

STONY MOUNTAIN.

PENITENTIARY.

During the last fiscal year the following works were carried out :—

Construction of a dry house for lumber.

Construction of a coal shed.

Opening, altering and enlarging drains.

Constructing abattoirs.

Erecting double cottages of brick-veneer for guards.

Adding a conservatory to Warden's house.

General repairs and renewals to prison building, outbuildings, &c,

Resident Clerk of Works, Mr. D. Smith.

WINNIPEG.

POST OFFICE.

The construction of this building, which was described in last year's report, has since been in progress continuously, and, it is expected, will be roofed in this autumn.

Plans, &c., prepared by this Department.

Resident Clerk of Works, Mr. D. Smith.

Contractors, Messrs. Gilley & Co.

POWDER MAGAZINE.

This building, which was described in my last report, was completed and in use last summer.

Plans, &c., prepared by this Department.

Resident Clerk of Works, Mr. D. Smith.

Contractors, Messrs. Rourke & Cass.

PARLIAMENT BUILDING.

Works referred to in my last report are in progress, to be completed during the past fiscal year, as also were the following works :—

Frescoing Assembly Chamber.

Gas-fitting in Chamber with reflectors, and with gas burners arranged to be lighted by electricity.

Roadways, plank walks, fencing and the grading of ground are completed.

Plans, &c., prepared by this Department.

Resident Clerk of Works, Mr. D. Smith.

Contractors for grading, fencing, &c., Messrs. Rourke & Cass.

Contractor for frescoing, Messrs. Grant & Co.

Contractor for gas-fitting, The American Plumbing Co.

LIEUTENANT-GOVEROR'S RESIDENCE.

During the fiscal year 1884-85 the following final works were carried out:—

Construction of a wood-shed, wash-house and icehouse.

Construction of conservatory.

Iron cresting to roof.

Grading roads and grounds and seeding down lawn, &c.

Construction of plank walks.

Plans, &c., prepared by this Department.

Resident Clerk of Works, Mr. D. Smith.

DRILL HALL.

A contract for this building, which is in course of erection on the corner of Broadway and Fort Osborne streets, was entered into on the 30th August, 1884.

The building is of wood, resting on a foundation of cedar piles, and consists of a Drill Hall 175 feet by 85 feet, with infantry and cavalry armories of an aggregate length of 150 feet by a width of 15 feet, and in the rear an artillery armory, and a gun shed 19 feet 3 inches in width by 44 feet and 51 feet long respectively. The hall is 50 feet high from street line to apex of roof and the eaves 25 feet; the armories adjoining are 13 feet from floor to ceiling. Externally the building is plain treated, but has the front broken by two square towers, measuring on plan 14 feet by 14 feet, and which are 60 feet and 50 feet respectively.

The roof of the hall is supported by 11 elliptical laminated wooden ribs, each of which is secured by a $1\frac{1}{2}$ -inch iron tension rod.

There are three entrances to the hall, two on the front and one in the middle of the left flank; in the rear are two large entrances to the gun shed, the infantry armories and the closets having each an entrance.

Architect, Mr. Geo. Stewart.

Resident Clerk of Works, Mr. D. Smith.

Contractors, Messrs. Murray & McDiarmid.

REPAIRS TO AND ALTERATIONS OF PUBLIC BUILDINGS, MANITOBA.

Winnipeg Temporary Post Office.

Entire roof has been shingled, gas fittings provided, and a portion of Post Office fittings altered.

Winnipeg Customs House.

Drainage remodelled, shingles repaired and painted, gas put in, foundation concreted, and external and internal woodwork repainted.

Winnipeg Dominion Lands Office.

Offices rearranged; additional shelving, furniture, counters, &c., put in; gas fittings, water pipes and drains altered; interior painted.

Winnipeg Immigrant Shed.

General but trifling repairs.

Emerson Immigration Office.

Banked with earth outside; outside platform renewed; new storm sashes; new clapboarding, with tar paper under, and new flooring with brown paper under, and steps to back door; repairs made to plastering and painting.

NORTH-WEST TERRITORIES.**HIGH RIVER AND QU'APPELLE.****INDUSTRIAL SCHOOLS.**

Plans and specifications were prepared for these buildings in accordance with the requirements of the Department of Indian Affairs, and contracts for their erection were entered into on the 9th July, 1884 and 24th June, 1884, respectively.

The two buildings are to be erected from the same plans and specifications. Each building is to be 61 feet in width by 72 feet in depth, the latter exclusive of a verandah 7 feet in width by the entire length of the building. There are to be two stories, the ground floor to contain a school room 25 feet by 40 feet, a dining room 25 feet by 35 feet, a kitchen 20 feet by 20 feet, and also a class room, two rooms for Principal, a room for matron, and two closets; the first floor a dormitory 24 feet by 60 feet, of five bedrooms, a sitting room, two bath-rooms and a linen closet. The construction is to be of wood, with brick chimneys and plastered partitions.

Plans and specifications prepared by this Department.

Resident Clerk of Works, Mr. Wm. Henderson.

Contractors for High River School, Messrs. Williams & Murphy.

Contractor for Qu'Appelle School, Mr. P. Zindord.

CALGARY.**IMMIGRATION BUILDING.**

On 28th November, 1884, a contract was entered into for the construction of this building, which is to be of wood and two stories in height, with a one-story building for kitchens and closets in the rear. The main building is to be 51 feet 6 inches by 29 feet 6 inches, and the rear building 18 feet 9 inches by 15 feet 6 inches.

Plans, &c., prepared by this Department.

Clerk of Works, Mr. Wm. Henderson.

Contractor, Mr. P. Zindord.

MEDICINE HAT.**IMMIGRATION BUILDING.**

A contract for this building, which is similar to that at Calgary, was entered into on 28th November, 1884.

Plans, &c., prepared by this Department.

Clerk of Works, Mr. Wm. Henderson.

Contractor, Mr. P. Zindord.

REGINA.

DOMINION GAOL AND LUNATIC ASYLUM.

Plans and specifications were prepared in accordance with the requirements of the Department of Justice, and a contract was entered into on 2nd June, 1885, for the erection of this building on the Government reserve.

The building will be 113 feet in extreme length, and consist of the administrative block, 40 feet long by 50 feet in breadth, consisting of basement and two stories, having on the ground floor reception and mess rooms, office, bedroom and kitchen, and on first floor surgery, matron's room, sick wards and dining rooms for insane and convicts; in the rear and abutting this is the cell wing, 66 feet long by 36 feet in width, two stories in height, containing on the ground floor twenty cells 4 feet by 8 feet, in two series, back to back, surrounded by a corridor, and on the first floor eight similar cells, besides a ward each for male and female insane, and two wards for female convicts; at the extreme end of the cell wing are the W.C's.

The cell wing is intended to be one of three similar blocks, the two others to be placed one on each side of the administrative block.

The walls will be brick, on a stone foundation; the ceilings of cells of arched brick work; the floors of the administrative portion and the roofs throughout are to be of wood; shingled.

Plans, &c., prepared by this Department.

Clerk of Works, Mr. Wm. Henderson.

Contractors, Messrs. Gelley & Soucisse.

POST OFFICE.

A contract was entered into on 2nd June, 1885, and the works are in progress on the Dominion Government Reserve.

The building is to be 33 feet square, and consist of an unfinished basement and two brick stories. The ground floor will contain the post office, and the first floor five offices.

The foundation walls are to be stone, and the upper walls of brick; the floors and roof to be wood.

Plans, &c., prepared by this Department.

Clerk of Works, Mr. Wm. Henderson.

Contractors, Messrs. Gelley & Soucisse.

BRITISH COLUMBIA.

NEW WESTMINSTER.

PENITENTIARY.

Thirty-two cells were added to the prison portion of the building.

The roof of the Warden's quarters was felted and gravelled, and two new chimney built.

Various necessary repairs were executed and a temporary water service put in

Plans, &c., prepared under the direction of and work supervised by Hon. Jos. W Trutch.

Clerk of Works, Mr. Hay.

Contractor, Mr. Chas. Hayward.

ALBERT HEAD.

QUARANTINE STATION.

An hospital building was erected, consisting of 2 one-story wards, each 43 feet square, and a central two-stories portion, 40 feet by 38 feet, containing on each floor four rooms and a corridor.

Outhouses, tanks for water, fencing, &c., will be required before the building will be fit for occupation.

Plans, &c., prepared by this Department.

Work supervised by Hon. Jos. W. Trutch.

Contractor, Mr. Chas. Hayward.

GENERALLY.

A large number of the Dominion Public Buildings have received ordinary and essential repairs, none of them, however, to a sufficient amount to warrant special mention, but in the aggregate involving a large quantity of office work and supervision.

APPENDIX No. 3.

LIST

OF

ENGINEERS, FIREMEN AND CARETAKERS

OF

PUBLIC BUILDINGS THROUGHOUT THE DOMINION,

GIVING

DATE OF APPOINTMENT, SALARY PAID, ETC.

APPENDIX No. 3.

Ref. No. 62,515.

STATEMENT showing the Engineers, Firemen, Caretakers and Watchmen Employed at Dominion Public Buildings on 30th June, 1885, giving Date of Appointment, Salary, &c.

Place.	Building.	Name.	Position.	Date of Appointment.	Salary per Month.	Time Employed per Annum.	Total Amount Paid per Annum.
					\$ cts.		\$ cts.
Halifax..... N.S...	Dominion Building.....	John Powell.....	Engineer.....	1st October, 1871...	62 50	12 months...	750 00
	do	Richard Power.....	Fireman.....	1st do 1871...	50 00	6 do	300 00
	do	M. Sullivan.....	Night Watchman.....	31st do 1883...	9 p.w.	12 do	468 00
	do	G. Tobin.....	do	31st do 1883...	9 p.w.	12 do	468 00
	Penitentiary.....	M. Kennedy.....	Caretaker.....	31st do 1880...	37 50	12 do	450 00
Charlottetown P.E.I.	Dominion Building.....	D. McLeod.....	Engineer.....	12th September, 1872...	33 33	12 do	400 00
	do	Ed. Harding.....	Fireman.....	6th October, 1881...	28 00	6 do	168 00
	do	E. Fleming.....	do	7th do 1882...	28 00	12 do	336 00
	do	James Grant.....	Watchman.....	18th August, 1881...	37 50	12 do	450 00
	do	George Walker.....	do	..... 1882...	37 50	12 do	450 00
St. John..... N.B...	Custom House.....	G. H. Jones.....	Engineer.....	17th February, 1880...	60 00	12 do	720 00
	do	G. B. Spiller.....	Fireman.....	1st December, 188...	45 00	6 do	270 00
	do	T. W. Shawe.....	Caretaker.....	8th December, 1881...	41 67	12 do	500 00
	Post Office.....	Henry Howe.....	Engineer.....	4th November, 1881...	55 00	12 do	660 00
	do	Ed. Haney.....	do	27th do 1882...	55 00	12 do	660 00
	Penitentiary.....	Geo. Campbell.....	Caretaker.....	29th October, 1880...	37 50	12 do	450 00
	Saving Bank.....	P. Dawson.....	Engineer.....	28th January, 1879...	45 00	6 do	270 00
Dorchester..... N.B...	Penitentiary.....	Jas. Percy.....	do	21st November, 1882...	50 00	6 do	300 00
Fredericton N.B...	Post Office.....	Jas. Perkins.....	Caretaker.....	31st May, 1883...	33 33	12 do	400 00
Sussex..... N.B...	do	John Asbill.....	do	19th October, 1883...	33 33	12 do	400 00
Quebec..... Que...	do	P. Denechaud.....	Engineer.....	27th June, 1874...	45 00	6 do	270 00
St. John's Que...	Custom House.....	C. Juneau.....	do	..... 1876...	45 00	6 do	270 00
	Post Office.....	Wm. Camper.....	Watchman.....	— December, 1881...	12 50	12 do	150 00
	do	Jos. Forand.....	Caretaker.....	29th September, 1882...	16 67	12 do	200 00
Examinig Warehouse ..	do	M. Boyer.....	Fireman.....	1th March, 1882...	45 00	12 do	540 00
Post Office..... Que...	do	John Watson.....	Engineer.....	18th October, 1876...	60 00	12 do	720 00
Inland Revenue ..	do	F. Greene.....	do	1st January, 1885...	60 00	12 do	720 00
Custom House.....	do	Thos. Ryan.....	do	4th March, 1882...	80 00	12 do	960 00
do	do	W. Wallace.....	Fireman.....	1st October, 1882...	45 00	8 do	360 00

Three Rivers.....Que...	do	J. A. Marchand	Caretaker	1882...	45 00	12	do	360 00
Sherbrooke.....Que...	do	R. Lejoie	do	1883...	58 33	12	do	700 00
Toronto.....Ont...	Public Building	Jos. Carboneau	do	1883...	36 42	12	do	365 00
	Custom House	T. Rawson	do	1884...	33 33	12	do	400 00
		John A. Wills	Engineer	1876...	90 00	12	do	1,080 00
	Examining Warehouse	Jas. Humphreys	Fireman	1881...	45 00	6	do	270 00
	Post Office.....	Jas. Cosgrave	do	1874...	60 00	12	do	720 00
	Revenue Building	Mat. Stewart	do	1878...	55 00	6	do	330 00
	Public Building	Jas. Claxton	do	1882...	45 00	6	do	270 00
Hamilton.....Ont...	Military College	John Drysdale	Engineer	1880...	90 00	12	do	1,080 00
Kingston.....Ont...	do	W. Johnston	Fireman	1881...	65 00	12	do	780 00
	Custom House.....	M. Madden	do	1878...	45 00	6	do	270 00
London.....Ont...	Post Office and Custom House	Thos. Bayley	Engineer	1873...	50 00	12	do	600 00
		John Price	Fireman	1884...	45 00	12	do	540 00
Brantford.....Ont...	do	William Greer	Caretaker	1885...	33 34	12	do	400 00
Windsor.....Ont...	Post Office.....	John Squires	Engineer	1880...	50 00	12	do	600 00
	do	John Hannan	do	1880...	50 00	12	do	600 00
Chatham.....Ont...	do	Wm. Curtis	Caretaker	1880...	33 33	12	do	400 00
	do	Henry Dunn	Engineer	1884...	50 00	7	do	350 00
Belleville.....Ont...	do	W. W. Mitchell	Caretaker	1885...	33 34	12	do	400 00
St. Catharines.....Ont...	Public Building	J. P. Reeves	do	1883...	50 00	12	do	600 00
Guelph.....Ont...	do	W. Bryson	do	1883...	33 33	12	do	400 00
Regina.....N. W. T.	do	A. H. Goodeve	do	1884...	33 34	12	do	400 00
Nanaimo.....B. C.	Council Chambers	J. C. Perritt	do	1884...	30 00	12	do	360 00
New Westminster.....B. C.	Public Building.....	John Thompson	Caretaker	1884...	50 00	12	do	600 00
	do	John McMurphy	do	1884...	50 00	12	do	600 00

R. STECKEL,
Chief Clerk.

APPENDIX No. 4.

REPORT

ON THE

Heating Apparatus, Gas, Water & Bell Services, Etc.,

IN THE

PUBLIC BUILDINGS, OTTAWA,

For the Fiscal Year Ended 30th June, 1885.

BY JOHN R. ARNOLDI, MECHANICAL ENGINEER.

APPENDIX No. 4.

REPORT OF THE MECHANICAL ENGINEER.

Ref. No. 62,431.

MECHANICAL ENGINEER'S OFFICE,

OTTAWA, 15th October, 1885.

SIR,—I have the honour to report as follows in reference to the Public Buildings, Ottawa, during the fiscal year ended the 30th June, 1885, viz. :—

PARLIAMENT BUILDING.

A further test of the incandescent electric light was made during recess and introduced during the Session into the Commons Chamber, and found to work satisfactorily.

Nothing was required to be done to the general heating and ventilating apparatus of this building.

The engine, boilers, heating apparatus and general services of gas, water and bells are in good condition.

EAST AND WEST BLOCKS.

In the Eastern Block it was found necessary to overhaul a portion of the heating apparatus, owing to the piping being 21 years old. The vault piping was also remodelled to a more modern system, for economy in maintenance and working.

Beyond these simple works nothing more was required, apart from the ordinary maintenance of the heating apparatus and general repairs to gas, water and bell services.

SUPREME COURT.

Nothing but ordinary maintenance was required in this building.

RIDEAU HALL.

No work was done on this building beyond, the usual maintenance and repairs to water, gas and bell services.

OTTAWA POST OFFICE AND CUSTOMS BUILDING.

It was found necessary to make some improvement in the sanitary plumbing of this building, but beyond this nothing but ordinary maintenance was required to the general services of heating, gas and water.

GEOLOGICAL MUSEUM.

Nothing but the ordinary repairs to water, gas and bell services were required to be done in this building.

PARLIAMENT GROUNDS FLOWER PROPAGATING HOUSE.

No work was done in connection with the heating apparatus of this building, beyond the removal of the inside casing of the furnace.

INDIAN AFFAIRS (LEASED).

Nothing but the ordinary maintenance and repairs to water, gas and bell services was required to be done.

POST OFFICE DEPARTMENT (SAVINGS BANK BRANCH).

Premises for this branch were leased over the Ottawa Bank, and new gas fixtures, water closets, wash basins and electric bells were arranged in this building, to suit the requirements of the branch.

I have the honour to be, Sir,
Your obedient servant,

JNO. R. ARNOLDI,
Mechanical Engineer.

A. GOBEIL, Esq.,
Secretary Department of Public Works.

APPENDIX No. 5.

REPORT

ON

HARBOURS AND RIVERS, DREDGES, DREDGING AND SURVEYS

THROUGHOUT THE DOMINION,

FOR THE FISCAL YEAR ENDED 30TH JUNE, 1885.

BY

HENRY F. PERLEY, CHIEF ENGINEER.

APPENDIX No. 5.

REPORT OF THE CHIEF ENGINEER.

CHIEF ENGINEER'S OFFICE,

OTTAWA, 21st October, 1885.

Ref. No. 62,548.

SIR,—I have the honour to report as follows on the harbour works and surveys of the last fiscal year.

I have the honour to be, Sir,

Your obedient, servant,

HENRY F. PERLEY,

Chief Engineer.

A. GOBEL, Esq.,

Secretary Department of Public Works.

PRINCE EDWARD ISLAND.

HICKEY'S PIER.

Hickey's Pier, Queen's County, is on the eastern side of the East or Hillsboro' River, about ten miles from Charlottetown.

Necessary repairs were made to the roadway, floor, stringers, planking and capping; fenders were put on, and the outer end of the pier was sheathed.

RED POINT.

This pier is in Queen's County, and is situated on the eastern side of Hillsboro' River, about six miles north-eastwardly from the city of Charlottetown.

The pier at this place, which had become so dilapidated that its usefulness was gone, received general repairs and was put in a serviceable state.

POWNAI.

Pownal Pier is on lot 49, Queen's County, at the head of Pownal Bay.

Such general repairs as were found to be required were effected.

CHINA POINT.

This pier is situated on lot 50, Queen's County, and on the north side of Orwell Bay.

Such general repairs as were required on this pier have been effected.

VERNON RIVER PIER.

This pier is on lot 50, Queen's County, two miles above the entrance of the river in Orwell Bay.

The pier at this place was levelled up and necessary repairs made.

PORT SELKIRK PIER

Is on lot 57, Queen's County, and on the south side of Orwell River, near its entrance into the bay of that name.

The repairs necessary to make this pier available for traffic were executed.

BELFAST.

This pier is situated on lot 57, Queen's County, on the south side of Orwell Bay.

This pier received such repairs as would enable fall shipments of produce to be made therefrom.

WOOD ISLANDS

On the south coast, about 35 miles south-east from Charlottetown.

The works referred to in the reports of last year were completed soon after the commencement of the year.

SOUTH RIVER PIER.

Lot 64, King's County, at the head of navigation, on the South River, Murray Harbour.

Such small repairs as were required were effected.

MINK RIVER PIER

On lot 63, King's County, near the junction of Mink River with Murray Harbour.

This pier, which was in a bad state of repair, was put in good order and rendered serviceable for the trade of the locality.

ST. MARY'S BAY PIER

Is on lot 61, King's County, and on the south side of St. Mary's Bay.

This pier, which had got much out of repair, was put in serviceable condition, and fit for the fall shipments.

LAMBERT'S PIER.

This pier is at Montague Village, lot 59, on the Montague River, 6 miles above its entrance into Cardigan Bay.

During the past year the whole of the "extension" (so called) was entirely rebuilt with new materials, and such extensive repairs made to other portions of the work that the pier, which had become useless, was made available for traffic.

QUEEN'S PIER, GEORGETOWN.

Is built on the north side of Montague River, near its entrance into Cardigan Bay, King's County.

Extensive repairs were made to the pier at this place. It has a total length of 642 feet, being composed of alternate blocks and spans.

NORTH CARDIGAN.

Lot 54, Kings County, on the north side of Cardigan River, near its entrance into Cardigan Bay.

Since 1st July 1884, the fenders at the ends and side of the outer block of the pier at this place were removed, and the faces protected by close-piling; the covering has been repaired in places, and the roadway levelled up where uneven.

LEWIS POINT PIER.

Lot 53, King's County, on the northern bank of Cardigan River, and seven miles from North Cardigan Pier.

The pier at this place was strengthened and repaired, and made fit for traffic.

ANNANDALE.

Lot 56, King's County, on the north side of the Grand River, near its entrance into Boughton Bay, and distant from Souris 15 miles by road.

The pier at this place being old, such repairs as were necessary to make it serviceable for the season were effected.

SOUTH RUSTICO.

South Rustico Pier is in Queen's County, at the mouth of the Wheatley River, and is 13 miles north of Charlottetown.

The pier was repaired, to enable the full shipments to be made therefrom.

MALPEQUE.

The harbour of Malpeque lies within the eastern entrance of Richmond Bay, about 90 miles from East Point and 40 from North Cape.

The works referred to in the report of last year were satisfactorily completed in July, 1884.

TIGNISH.

At the mouth of Big Tignish River, Prince County, about 8 miles east of North Point.

A contract was entered into in November last for the extension of the present breakwater, a distance of 1,875 feet, to meet the high land and prevent the sea breaking through the beach; also for 440 feet of brush and stone slope on the north face of the northern breakwater, and raising and refilling 100 feet of the existing brush and stone slope.

At the close of the fiscal year the work was fairly under way.

HIGGIN'S SHORE PIER.

This pier is in Egmont Bay, Prince County, and is situated about 10 miles to the northward of Egmont Cape.

The filling, which forms the roadway of this pier, having settled to such an extent as to render it unfit for traffic, was made good.

MCGEE'S PIER.

McGee's Pier, Prince County, is situated on Egmont Bay, 5 miles to the northward of Egmont Cape.

The roadway which had settled in places was made up, and the pier is now in good condition.

SUMMERSIDE.

Summerside is the principal seaport town in the western end of Prince Edward Island, and is the objective point for the steamers plying to Shediac, N.B., making connection with the Intercolonial Railway at that place.

During the summer of 1884 the dredge "George McKenzie" was engaged in deepening the water at the "Queen's Wharf," the work done consisting in an approach 12 feet in length, 204 feet in width, and 13 feet deep at low water, from deep water in the harbour to the end of the wharf. On the east side a cut 544 feet in length and 12 feet in width, and on the west side a cut 231 feet in length and 81 feet in width, both 12 feet in depth at low water, were made.

HURD'S POINT.

Hurd's Point Pier, Prince County, is situated on the south side of the southern arm of Summerside Harbour, and about 3 miles south of the town of Summerside.

Such temporary repairs as would make the pier available for fall shipments were effected.

In May last a contract was entered into for the re-building of the outer part or damaged portion of the pier and the construction of two blocks, each 50 feet long and 20 feet wide, placed on either side of the outer end, thus forming a pier head, and at the close of the fiscal year the works embraced in the contract were about one-half completed.

The excavation of a deep-water channel to this wharf has been commenced, which, when completed, will be 2,700 feet in length, 255 feet in width, with a depth of 12 feet at low water.

VICTORIA, OR CRAPAUD.

Victoria is a thriving settlement in Queen's County, and is situated at the head of navigation in Crapaud Basin, and is about mid-distant between the towns of Charlottetown and Summerside.

This pier, built several years ago by the Local Government, was put in a thorough state of repair.

NOVA SCOTIA.

COW BAY.

On the eastern coast of Cape Breton and about 18 miles south-east of Sydney.

During the last fiscal year the following work was done on the breakwater at this place : 1,078 close piles driven and secured ; 40,000 cubic feet of close-faced crib work built ; 2,051 cubic yards of ballast put in ; 32,000 feet B.M. of flooring put on ; 98 lineal feet of face sheathed ; 5 new mooring piles placed in position, and 6 others sheathed with hardwood.

HAY COVE.

Hay Cove, Richmond County, is an inlet of the Great Bras d'Or, and is 10 miles distant from St. Peter's Canal.

In 1881 the residents of the district built a small wharf, 41 feet in length and 21 feet wide, on the east side of the cove.

During 1884-85 the Department raised and strengthened this work, and built an addition, 27 feet long by 21½ feet wide, close up against the side of the old work.

BOULARDERIE.

Boularderie, Cape Breton, is on the north side of Boularderie Island, Great Bras d'Or, and 12 miles south-east from Baddeck.

A public wharf, 134 feet in length, 20 feet wide, with a head 50 by 20 feet, has been built at this place. It has an average depth of 13 feet at its outer end, and will when the grading of the approach is completed, be of great benefit to the residents of the north side of the island.

WHYCOCOMAGH.

Whycocomagh, Inverness County, C.B., is situated on Whycocomagh Bay, an arm of the Great Bras d'Or Lake, to the westward of Baddeck, the principal town of the lake.

At this place a cut 120 feet in length, 50 feet in width and 8 feet deep at low water, was made into Campbell's Pond, to permit the entrance of fishing boats and small craft ; and a channel 50 feet in length and 65 feet in width was opened to the public wharf, a depth of 12 feet at low water being obtained.

BENACADIE POND.

Benacadie Pond, Cape Breton County, is an inlet from the Great Bras d'Or Lake the entrance to which was obstructed by a bar of sand and gravel.

During the summer of 1885 the dredge "Cape Breton" completed a channel 650 feet in length, 60 feet in width and 12 feet in depth at low water, through this bar, the sides of the channel thus made being protected by piles and brush, which were placed in position prior to dredging being commenced.

CHRISTMAS ISLAND.

Christmas Island, Cape Breton County, lies close to the south-eastern shore of the Little Bras d' Or Lake, about $1\frac{3}{4}$ miles from Barra Strait. The harbour is formed by two islands and connecting sand bars, and is open at its western end, the entrance being blocked by a shoal.

During the summer of 1884 a cut 770 feet in length, 80 feet wide at the outer end and 90 feet wide at the inner end, with a depth of 12 feet, was opened through this shoal, and vessels have now free access.

PETIT DE GBAT

Is in Ile Madame, Richmond County.

The protection work built at this place in 1880 was repaired during the year.

D'ESCOUSSE HARBOUR.

D'Escousse harbour, in the north side of Ile Madame, Richmond County, lies inside of Bernard Island, at the eastern end of Lennox Passage. It is about half a mile in length by one-quarter of a mile in width, and has a depth of from two and a half to three fathoms over the greater part of its area. The principal entrance is from the eastward through a narrow and moderately curved channel. In 1872-73 this channel was improved by dredging, and last year the dredge "Geo. McKenzie" was sent there and cut off the point of the shoal, thus straightening the entrance and making it easier to pass through. Work was also done off the public wharf.

PORT MULGRAVE.

Port Mulgrave, Guysboro' County, is on the western side of the Strait of Canso, and is now the terminus of the Eastern Counties Railway, and the point of departure of the steamers plying to points in Cape Breton.

For the better accommodation of steamers a large amount of dredging has been done up to and around the railway wharf at this place.

PORT HOOD.

Port Hood is the shire town of the County of Inverness, and is situated on the western coast of Cape Breton, 20 miles to the northward of the northern entrance of the Gut of Canso.

The rip-rap protection to the wharf at this place, which had been disturbed at some few points, was made good during the year.

MABOU.

Mabou is in Inverness County and six miles north of Port Hood, on the Gulf of St. Lawrence.

During the past year the following repairs were made to the harbour works at this place: 197 feet of the pier extending along the south side of the channel has been close-piled, the outer end of the pier close-piled, and a talus of stone deposited around it. The covering was repaired where necessary, and the old breastwork at Rankin's Point was refilled with ballast and repaired.

Between the 27th May and 30th June, 1885, the dredge "Canada" was engaged in opening the channel entrance to the harbour.

OYSTER POND

In Guysboro' County.

The works referred to in the report of last year were completed.

TRACADIE.

Big Tracadie, Antigonish County, is a harbour on the southern shore of St. George's Bay.

During the past fiscal year the repairs executed to the harbour works at this place consisted in close piling the channel face of the breakwater, refilling it with ballast, rebuilding 170 feet of the breakwater, and adding otherwise to the security of the existing structure.

RIVER JOHN.

The River John, Pictou County, falls into John Bay, 4 miles south-east from Cape John. A large amount of dredging has, since 1878, been done in this river, and it is now navigable for small craft at low water.

During the past fiscal year the deepening of the channel was continued up to the highway bridge, which effectually stops any further improvement.

FIVE ISLANDS.

Five Islands, Colchester County, situated about 14 miles to the eastward of Parrsboro'.

During the year a wharf 75 feet long and 40 feet wide has been built by the Department at "Harrow Beach" (so called).

Owing to the great rise and fall of the tide at this part of the head of the Bay of Fundy, the work is dry at low water, and can only be approached at or near high tide. There is then a depth of 20 feet at its outer end, and ample facilities are afforded to vessels.

PARRSBORO'.

Parrsboro', Cumberland County, is situate on the north side of the Basin of Minas, near the mouth of the Partridge Island River.

During the latter part of the winter of 1883-84 the pier at this place was again damaged by running ice, and the necessary repairs were effected.

CHEVERIE.

Cheverie, Hants County, is on the north shore of the Basin of Minas, near the mouth of the River Avon, and 16 miles from Windsor, the shire town.

A breakwater 130 feet long has been built at this place. It is situated 300 feet from the end of the wharf built by the Government of Nova Scotia, and extended by the Department in 1873, and again in 1883.

HALL'S HARBOUR

Is on the south shore of the Bay of Fundy, 11 miles north of Kentville, the shire-town of King's County.

In 1884 some small repairs were made to the western pier at this place, which acts as a breakwater to the harbour, but during the severe gale of 5th and 6th November, 1884, the sea carried away the entire outer block and threw up a gravel bank, which prevents ingress and egress of vessels.

CANADA CREEK.

Canada Creek, King's County, is on the south shore of the Bay of Fundy, 60 miles east of Digby Gut.

During the year the western pier, which had been much damaged by the sea, was repaired and placed in good order, and a block, 55 feet in length and 10 feet wide on top, was built on the seaward side, at the inner end, to protect the old work at that point.

CHIPMAN'S BROOK.

Chipman's Brook, King's County, is on the southern shore of the Bay of Fundy, 64 miles east of Digby Gut.

Repairs to the pier were continued during the year, and further work is required to put it in thorough order.

HARBOURVILLE.

Harbourville is on the south shore of the Bay of Fundy and about 55 miles east from Digby Gut.

During the past year the work built in 1833-84, and the ends of the breakwater were close sheathed; the outer 90 feet of the pier raised 2 feet and replanked, while 200 feet of the eastern pier was refaced and new fenders placed on the inner face of the western pier.

OGILVIE.

Ogilvie pier is on the south shore of the Bay of Fundy, about midway between Harbourville and Morden in King's County.

Many years ago the Government of Nova Scotia built a pier 250 feet long and 35 feet wide at this place.

With the amount appropriated for expenditure during the fiscal year, a new block 20 feet in length has been added to the outer end, and the outer 100 feet of the old work repaired.

DIGBY.

Digby is the shire town of the county of that name and is situated at the western end of Annapolis Basin, and is the present terminus of the Western Counties Railway.

For the protection and storage of freight, a contract was entered into in November last, for the construction of two warehouses, one 36 x 30 feet on the outer end of the pier, and the other 80 x 18 feet with an addition 36 x 30 feet at the head of the inclined landing. They were both satisfactorily completed on the 20th January last.

METEGHAN COVE.

Meteghan Cove is situated on the south shore of St. Mary's Bay, about 43 miles from Digby.

The pier having been damaged by the gale of November last, the following repairs were made thereto:

A breach 25 feet wide and from 4 to 6 feet deep below the top of the work was filled in, new flooring for a length of 40 feet put on, and ballast replaced wherever it had been washed out.

TUSKET WEDGE

In the southern part of Yarmouth County and about 13 miles from the town of Yarmouth.

The wharf commenced by the Government of Nova Scotia some years ago at this place and continued by the inhabitants, never having been completed, was taken in hand by the Department and completed in October, 1884, and has already proved of great benefit to the locality.

COFFIN'S ISLAND.

Coffin's Island, Queen's County, is about $\frac{2}{3}$ of a mile in length, and lies on the north side of, and at the eastern entrance to, Liverpool Bay.

In 1882-83 the Department built a "spur" or breakwater 250 feet long, of large stones, to prevent the sea washing through the low portion of the western beach. This, however, not being found sufficient, the gap has, during the fiscal year, been filled in with cribwork in a similar manner to that through the eastern beach.

BROOKLYN.

Brooklyn, or Herring Cove, is situated on the east side of Liverpool Bay, and about $\frac{1}{2}$ a mile outside the bar of Liverpool Harbour, Queen's County.

During the summer of 1884 some temporary repairs were executed to the sloping face and covering of the breakwater.

LUNENBURG.

Lunenburg is situated at the head of Lunenburg Bay, about 40 miles westward of the entrance to the harbour of Halifax. The harbour is secure and well protected, and is principally used by vessels of moderate size.

The dredging, referred to in the report of last year, was brought to a conclusion on the 11th of July, when a channel in front of the wharves, 850 feet in length and 75 feet in width, was dredged to a depth of 17 feet at low water.

PORTER'S LAKE.

This is a tidal lake about 20 miles north-east of Halifax.

The deposit which had accumulated in the small channel leading from the lake to the sea, and prevented boats from getting in or out of the lake, was removed. It is, however, probable that the relief given is but temporary.

THREE FATHOM HARBOUR.

Three Fathom Harbour is in Halifax County, about 14 miles to the eastward of the entrance of Halifax Harbour.

The beach protection works have been extended a further distance of 125 feet, and a short return—to tie the work into the bank at its southerly end—built. Repairs were also made to the old work where required.

NEW BRUNSWICK.

RIVER MIRAMICHI.

The dredge "St. Lawrence" operated on the "Horse Shoe Shoal" and the "Grand Dune," at the mouth of the Miramichi, from 1st July, to 27th September, 1884. At the former place a cut 900 feet in length and 200 feet in width was made across the bar, giving a depth of from 20 to 21 feet at low water, where 16 to 17 feet previously existed. At the "Grand Dune" a cut 1,080 feet in length and 140 feet in width has been made, and the depth at low water increased from 17 to 22 feet.

RICHIBUCTO.

This harbour is on the Strait of Northumberland, 40 miles north of Shediac.

The protection works have been extended a distance of 250 feet; the inner end of the breakwater close piled for a length of 180 feet, and the brush and stone filling in the body of the work having settled has been made good.

The protection works having received considerable damage during the heavy gale of November last, provision has been made for repairing them during the present season.

BUCTOUCHE

In Kent county and on the River Buctouche which empties into the Strait of Northumberland, about 25 miles north of Shediac.

The wharf referred to in the report of last year has been completed, and there is now a depth of from 10 to 15 feet at low water springs along its face.

HILLSBORO'.

Hillsboro', Albert County, is on the west bank of the Petitcodiac River, about 14 miles below Moncton.

In 1874 the Department built a small pier, 130 feet in length, for the protection of shipping.

During the fiscal year the work was raised 4 feet, re-ballasted, covered with new 3-inch planking, and the outer end, and 20 feet on each side, close fendered.

HOPEWELL CAPE.

Hopewell Cape, Albert County, is on the western side of the Petiteodiac River, miles below Hillsboro' and 7 above Grindstone Island, at the mouth of the river.

A ballast wharf, 380 feet in length, which was commenced in 1883, was completed in August, 1884.

A contract has been entered into for extending this wharf a distance of 200 feet and at the close of the fiscal year materials were being delivered and preparation, made for commencing work.

ANDERSON'S HOLLOW.

Anderson's Hollow, Albert County, is situated on the eastern side of Salisbury Bay, between Cape Enragé and Matthews Head.

A contract was entered into, in December, 1884, for an extension—shorewards—of 100 feet from the isolated block, and at the close of the fiscal year the work was nearly completed.

MISPEC.

Mispec, on the Bay of Fundy, is situated about 10 miles to the south-east of St. John.

The breakwater, 200 feet in length, mentioned in the report of last year as being in course of construction, was satisfactorily completed in January last.

ST. JOHN HARBOUR.

The works of reconstructing the breakwater at Negro Point at the entrance to the harbour were suspended in November by reason of the contractors being unable to proceed any further with them. A fresh contract has been entered into for their completion.

The dredge "St. Lawrence," was placed at work, on the 26th December, ult., on the "tail" of the Navy Island bar, and also in opening a deep water berth off the Long Wharf, at the head of the harbour.

FORT DUFFERIN.

Fort Dufferin is on Negro Point, at the western entrance to the Harbour of St. John.

The work of constructing a further length of retaining wall, and mentioned in last year's report as being in progress, has been completed.

RIVER ST. JOHN.

At Indiantown, St. John, which may be termed the lower end of navigation in the St. John, a cut 90 feet in length and 25 feet in width has been made, to a depth of 16 feet at low water, in front of the public wharf, the material removed being almost wholly coal ashes, which had been emptied from the various steamers using this wharf.

The channel of the Lower Jemseg, which is the outlet of the Grand Lake, was improved at Vanwart's Wharf, and opposite Never's Island, and a depth of 12 feet at low water obtained.

On the Oromocto shoal a cut of 2,180 feet in length, 50 feet in width and 12 feet deep, at low water was made. On examination of the St. John at this point it was found that that the "sheer dam" built by the Department some years ago from the western bank and above the head of Thatch Island, has had the effect of deepening and maintaining a channel through what was the shoalest point, but the effect has been to transfer the shoal to opposite the lower end of Thatch Island.

At St. Mary's and Gibson, opposite Fredericton, cuts have been made from the main channel of the river to the public landing and wharf at those places.

Above Fredericton the channel has been improved by the removal of stone and boulders. For many years expenditures have been made for this purpose, but the work of one season, has to a certain extent been undone the following spring, by the

deposit of a fresh lot of stone during the freshet season, and this must be a periodical occurrence.

On the Tobique, improvements in the channel have been effected at the Nictau, Forbes Island, Horse Island and Haley's Brook Bars. The work on Widow Taché's Reef, at the head of the Narrows, consisted in the blasting of solid ledge to obtain the depth required.

Rock in place has been removed from Tilley's Rapids; and the tow-path between Salmon River and the Grand Falls has been repaired. On the south-western side of the Falls, a high projecting cliff, which caused an eddy in which timber was caught and remained, has been partially removed. Between the Grand Falls and the St. Francis, repairs have been made to the tow-path, and numbers of large boulders have been removed from the channel.

At the mouth of the Madawaska, a "spur dam" has been built on the east side of the Little Falls, for the purpose of increasing the volume of water over the falls, for the benefit of passing logs and timber.

WEST ISLES.

The Parish of West Isles comprises all the islands to the westward of Champbello, in Passamaquoddy Bay, Charlotte County.

The rocky ledge which obstructed the channel between Deer and Hardwood Islands has been sufficiently removed to enable boats to pass at low water.

QUEBEC.

ETANG DU NORD

At the west end of Grindstone Island, one of the Magdalen group, Gulf of St. Lawrence.

Owing to the great amount of damage done to the works which had been constructed during the two previous years at Etang du Nord, it was found impossible to effect such repairs as would make them serviceable.

Accordingly the site was changed, and a breakwater was commenced at a place to the south of Isle aux Goélans, and at the close of the year the work was well under way.

BARACHOIS DE LA MALBAIE

On the north shore of Baie des Chaleurs.

During 1884-85 about 60 cubic yards of rocks were removed from the channel, and the work will be continued during the season.

NEWPORT RIVER

Is in Gaspé County, Baie des Chaleurs.

A contract has been entered into for the delivery of timber for works at the mouth of the river, and a portion of it has been delivered.

NEW CARLISLE.

New Carlisle, Bonaventure County, is on the north shore of the Baie des Chaleurs and 65 miles from Campbellton.

The pier at this place was raised.

The heavy gale of the 5th of November last, did considerable damage to this work, and much of the ballast was washed out. This was replaced and the work put in safety for the winter.

GRAND PABOS.

Grand Pabos is in the County of Gaspé, and 30 miles distant from Percé.

The work of removing boulders and rock from the channel leading into the harbour of Grand Pabos, was commenced and fair progress made therewith. The work is difficult owing to the swiftness of the current and its exposed position.

MATANE.

Matane, Rimouski County, is on the south shore of the St. Lawrence, 240 miles below Quebec.

The openings between the cribs forming the pier at this place were closed to prevent the sand from being washed into the channel.

RIVIÈRE BLANCHE.

The Rivière Blanche flows through the County of Rimouski, and empties into the St. Lawrence, 9 miles above Matane.

Some slight repairs were made to the block.

RIMOUSKI.

The village of Rimouski is the *chef lieu* of the county of the same name, and is situated on the south shore of the St. Lawrence, 179 miles below Quebec. The wharf is the point where the English mails are embarked and disembarked during the summer.

During the summer of 1884 the dredge "Canada" was employed in deepening the water on either side of the wharf, and at its head, a depth of 10 feet at low water having been obtained.

BIC.

Bic, Rimouski County, is on the south shore of the St. Lawrence, 170 miles below Quebec.

Construction of the wharf at this place commenced at the end of September, 1884, and was actively carried on during the season.

TROIS PISTOLES

On the south shore of the St. Lawrence, 148 miles below Quebec.

The damages done by the ice in the spring of 1884 were repaired, and the unfinished portions of the pier completed.

The severe storm of November, 1884, caused much damage, the approach being washed away and other mischief done.

L'ANSE À L'EAU

Near Tadousac, at the mouth of the River Saguenay.

The wharf at this place, where the steamers plying between Quebec and Chicoutimi call, was temporarily repaired.

ANSE ST. JEAN.

Anse St. Jean is 25 miles above the mouth of the Saguenay, and on the south-west shore.

The pier and the shed thereon received some slight necessary repairs.

ST. ALPHONSE DE BAGOTVILLE.

St. Alphonse is at the head of Ha! Ha! Bay, River Saguenay, about 66 miles from its mouth.

The works executed on the pier at this place during the year consisted in raising 2 to 3 feet over its whole length, constructing and placing in position a moveable lip, and erecting a shed, 80 by 66 feet, on the outer end.

RIVER SAGUENAY.

The work of deepening and improving the channel below Chicoutimi was continued during the year, and 932 cubic yards of boulders were taken out, and 2,475 cubic yards of sand and gravel dredged.

CHICOUTIMI.

On the southern side of the River Saguenay, at the head of navigation.

The filling of this pier between the head and the shore was raised 5 feet and planked, and a shed for the accommodation of passengers and freight erected on the outer end.

TEMISCOUATA ROAD.

This road runs from River du Loup (*en bas*) to the boundary line between the Provinces of Quebec and New Brunswick.

Repairs were made to the road-bed, culverts and bridges where required.

RIVIÈRE DU LOUP (EN BAS)

On the south shore of the St. Lawrence, 114 miles below Quebec.

The extension of the wharf at River du Loup, which had been placed under contract in the preceding year, was completed. The work, however, was severely damaged by the ice last spring, necessitating extensive repairs, which are being carried out.

SAULT AU COCHON

In the County of Saguenay, on the north shore of the St. Lawrence.

In August, 1884, a contract was entered into for the construction of an isolated block 100 feet long by 30 wide, just beyond low-water mark, and was completed in October of the same year.

MURRAY BAY,

On the north shore of the St. Lawrence, in the County of Charlevoix, and 6 miles below Quebec.

This pier received considerable damage during the storm of 5th November, 1884. Temporary repairs were at once made, to enable passengers and freight to be landed, and in June last the pier was put in good order.

LES EBOULEMENTS

On the north shore of the St. Lawrence, and 69 miles below Quebec.

With the sum appropriated a triangular block was built inside the north-east wing of the wharf, a moveable slip erected and the flooring repaired where required.

The heavy gale and high tide of 5th November, 1884, did some damage to the pier.

BAIE ST. PAUL

On the north shore of the St. Lawrence, 60 miles below Quebec.

During the year this pier, which has a total length of 730 feet, was completed and some boulders removed from near the head.

RIVER OUELLE.

This river empties into the St. Lawrence in the County of Kamouraska, 75 miles below Quebec.

The work of levelling up the pier was continued during the fiscal year.

STE. ANNE DE LA POCAITIÈRE,

In the County of Kamouraska, on the south shore of the St. Lawrence, 70 miles below Quebec.

The work of constructing a pier at this place was commenced in October, 1884, and continued till the amount appropriated was expended. Further work is being proceeded with.

RIVIÈRE BRAS ST. NICHOLAS.

This river empties into the Rivière du Sud at the town of St. Thomas M. Magny, 35 miles below Quebec.

A channel was opened through the shoal of gravel and boulders which had accumulated at the Intercolonial Railway bridge, and this diminished, to a great extent, the overflow of the river at the time of freshet last spring.

ST. THOMAS MONTMAGNY,

On the south shore of the St. Lawrence, 35 miles below Quebec.
The roadway leading to the pier, and the breakwater protecting it, were repaired.

ILE AUX GRUES.

Ile aux Grues, or Crane Island, is in the River St. Lawrence, opposite Cap St. Ignace, 30 miles below Quebec.

The work of connecting the isolated block with the shore, and referred to in the report of last year as being well under way, was brought to completion in October, 1884.

BERTHIER (EN BAS),

Is on the south shore of the St. Lawrence, $24\frac{1}{2}$ miles below Quebec.

A contract was entered into in February, 1884, for extending the wharf at this place 100 feet, and was completed during the fiscal year.

ST. FRANÇOIS D'ORLEANS,

At the extreme eastern end of the Island of Orleans, below Quebec.

The spaces between the blocks composing the pier have been timbered up to one foot above high water mark, and the wharf lengthened by an addition of a block of solid cribwork 90 feet in length.

GRANDE RIVIÈRE DE BEAUPRÉ.

This river empties into the St. Lawrence, on the north shore, 22 miles below Quebec.

To facilitate the descent of timber in this river, two small dams were built, one at St. Feriol and the other at the St. Joachim Chute.

CHATEAU RICHER.

In Montmorency County, 15 miles below Quebec, on the north shore of the St. Lawrence.

With the amount appropriated a large portion of the beach has been cleared of boulders, and rendered less dangerous to vessels grounding there at low tide.

QUEBEC MARINE HOSPITAL WHARVES.

The east wharf which had been rebuilt, was, during the fiscal year, raised 3 feet.

QUEEN'S WHARF, QUEBEC.

The work of taking down and rebuilding the faces of the "Queen's Wharf" at Quebec, was brought to completion in November, 1884.

RIVER ST. LAWRENCE, REMOVAL OF ANCHORS, CHAINS, &c.

The lifting barge was engaged in removing boulders from the channel of the St. Lawrence off the Graving Dock at Levis, and on the Fly Bank above the city of Quebec.

RIVER BATISCAN.

The Batiscan empties into the St. Lawrence on its northern side, about 57 miles above Quebec.

The dredging a basin in the mouth of the river, referred to in the report of last year, was finished.

RIVER ST. MAURICE.

During the year dredging was done in the east channel of the river, and 3,077 cubic yards of tough clay removed therefrom.

A number of boulders and other obstructions in the St. Maurice were removed between the Forges Rapids and the Gabelles.

GRANDES PILES,

On the river St. Maurice, 30 miles above Three Rivers.

Three additional piers to strengthen the boom at this station were built during the year, and repairs made to the other works where required.

RIVER YAMACHICHE.

The River Yamachiche empties into Lake St. Peter, about 16 miles above the city of Three Rivers.

A land slide having taken place where this river crosses the western boundary of the parish of Shawenigan, causing the water in the river to be dammed back, thus flooding the adjacent banks, a cut was made 6 to 8 feet wide and from 5 to 10 feet deep, through the obstruction, giving partial relief.

LANORAIE.

Lanoraie is in the County of Berthier, and 46 miles north-east of Montreal.

Under a contract with Messrs. Normand and Dusablon, an isolated block was during the fiscal year, constructed at this place.

NICOLET.

The River Nicolet flows into the St. Lawrence, on its southern shore, at the foot of Lake St. Peter.

A navigable channel has been opened through the Flats in Lake St. Peter to the wharves in the river, and 850 feet of pile protection work completed.

RIVIÈRE NOIRE.

This river empties into the River Nicolet.

The amount appropriated has been expended in clearing the banks of the river of alders, and the river itself of logs, dead trees and boulders, for a distance of miles. Several gravel shoals were also deepened.

RIVER MORASSE

Flows into the Nicolet, through the Township of Ham.

The descent of timber has been facilitated by the construction of dams and slides, and the removal of rocks.

RIVER ST. FRANCIS.

The St. Francis rises in the County of Wolfe and empties into Lake St. Peter.

At the mouth of this river, which is obstructed by a very large shoal, over which there is but a small depth of water, dredging was done for the Department during the summer of 1884.

RIVER YAMASKA.

This river empties into Lake St. Peter, River St. Lawrence, from the south.

A contract was entered into for the completion of the lock and dam at Illet Cardin, work on which had been abandoned by the original contractors, and at the close of the fiscal year they were virtually completed.

LAKE MEGANTIC.

A wharf has been constructed at Flints for the accommodation of the trade of the locality, and the wharf at Agnes received slight repairs.

STE. ANNE DE SOREL—CHENAL DU MOINE.

Two of the ice piers, which were badly damaged by the ice in the spring of 1884, received extensive repairs.

These piers have fully answered the purpose for which they were constructed and have proved of great use during the breaking up of the ice in the spring.

ST. CHARLES.

St. Charles is situated on the eastern bank of the River Richelieu, about 24 miles from its mouth.

The dredge "Nipissing" operated on the shoal in the River Richelieu opposite this place between 14th August and 21st October, 1884, to a depth of 8 feet at low water, removing 22,125 cubic yards of clay, gravel and boulders.

ILE AUX NOIX.

Ile aux Noix is in the River Richelieu, near the southern boundary of the Province.

The roadway leading from St. Valentine to the Richelieu was raised, improved and fenced. It can now be used at all seasons of the year.

LAPRAIRIE

On the southern shore of the St. Lawrence, seven miles above Montreal.

During the summer of 1884 the channel leading from the main channel of the St. Lawrence to the wharf and the berths at the side and in front of the same—referred to in the report of last year—were brought to a completion.

STE. ANNE DE BELLEVUE,

In the County of Jacques Cartier, near the confluence of the Ottawa with the St. Lawrence.

A contract has been entered into for the construction of a wharf below the Ste. Anne's lock, but at the close of the fiscal year the work had not been commenced.

RIVER ST. LOUIS.

This river flows eastwardly through the County of Beauharnois into the St. Lawrence at the town of Beauharnois.

The work of deepening the feeder from the St. Lawrence to the River St. Louis was carried on during the fiscal year and good progress made.

ST. ZOTIQUE.

At the foot of Lake St. Francis, three miles from Coteau Landing.

This wharf received necessary repair and the construction of ice-breakers was commenced.

RIVIÈRE À LA GRAISSE.

This river flows through the County of Vaudreuil, emptying into the Ottawa on its southern side, about forty-five miles above Montreal. The town of Rigaud is situated some three miles up the river.

The dredge "Nipissing" operated in deepening the channel of this river to 6 feet, between the 1st July and 9th August, 1884, and the dredge "Queen" between the 28th May and 30th June, 1885, removing 34,691 cubic yards of clay, stone and gravel.

PORTAGE DU FORT BRIDGE.

Crosses the Ottawa at Portage du Fort, about 60 miles above Ottawa.

This bridge having become much dilapidated and requiring extensive repairs to make it safe for traffic, and Parliament having appropriated a sum of money towards them, they were actively prosecuted during the year.

RIVER OTTAWA, BETWEEN BRISTOL AND CLARENDON.

A number of sand bars have been removed by dredging.

DES JOACHIMS BRIDGE.

This bridge spans the Ottawa, 150 miles above the city of Ottawa. The work has been brought to completion.

ONTARIO.

RIVER OTTAWA.

The work of removing the obstructions in the Lower Narrows, above Pembroke was resumed in August, 1884, and continued till completed. There is now a channel 100 feet in width, well buoyed out, with 7 feet of water at the lowest stage.

The dredge was then moved to Crab Island, 8 miles above Pembroke, and commenced the removal of the top of the island.

The Departmental dredge "Nipissing" commenced work on the stone shoal at the Ottawa, below Bronson's Wharf, opposite the city of Ottawa, and operated till the 20th of November, removing 1,500 cubic yards of boulders and gravel.

KINGSTON.

The removal of the top of Point Frederick shoal to a depth of 15 feet at low water was resumed, and at the close of the season 5,392 cubic yards of rock had been taken out.

RIVER NAPANEE.

The River Napanee empties into the Bay of Quinté below the town of Napanee.

The dredge "Ontario" commenced work on the shoals in the river and in straightening some sharp bends on the 11th July, and continued at work till the 6th of August, when the plant was removed and the work taken up by a dredge hired by the Department, the total number of yards of clay, sand and muck removed being 50,254.

SHANNONVILLE.

Is situated on the Salmon River, $1\frac{1}{2}$ miles from the Bay of Quinté, into which it empties, and is distant from Kingston about 40 miles.

The dredge "Ontario" arrived at Shannonville on 7th August, 1884, and commenced operations on the shoal, composed of sawdust and slabs, which obstructed the mouth of the river, by opening a deep channel through the shoal. Work continued till 15th November, by which time 41,140 cubic yards of material had been removed.

BELLEVILLE.

The city and harbour of Belleville are situated at the mouth of the River Maitland, which empties into the Bay of Quinté 43 miles west of Kingston.

Dredging operations in the harbour were continued from 1st July to 1st August, 1884, resulting in the removal of 6,650 cubic yards of hard-pan, stones and boulders.

COBOURG.

On Lake Ontario, 96 miles west of Kingston.

The work referred to in the report of last year as being under contract to Mr. Dinwoodie, was completed in October last.

Considerable settlement has taken place in this work, and the superstructure has been built up.

PORT HOPE.

On the north shore of Lake Ontario, 8 miles west of Cobourg.
Extensive repairs to the breakwater and western pier are in progress.

NEWCASTLE.

On Lake Ontario, 47 miles east of Toronto.
The repairs to the piers at this harbour were completed in September, 1884.

TORONTO.

The harbour of Toronto is on the north shore of Lake Ontario, 161 miles from Kingston.

The works on Toronto Island were virtually completed at the close of 1884, but the stone on the outer slope, which had been deposited during the year, was, on the more exposed portion, washed down during a heavy gale last spring.

On contract A no further work of extension was undertaken during the year, and only stone was placed to make up deficiencies in the protection slope.

These works have proved to be of much benefit to the harbour, and for the protection of the eastern end of the island.

Dredging at the western entrance, which was being carried on at the close of the fiscal year 1883-84, was continued until 3rd August, 1884, when the work undertaken was accomplished, and the channel materially improved.

PORT STANLEY.

Port Stanley is on Lake Erie, nearly midway between Long Point and Rondeau. The pier on which the lighthouse stands was put in thorough repair.

MORPETH.

Morpeth, Kent County, is on Lake Erie, about 10 miles east of Rondeau. The pier referred to in the report of last year was completed in November last.

RONDEAU.

Rondeau Harbour is on Lake Erie, 140 miles west of Port Colborne, the western entrance to the Welland Canal.

Repairs were made to the west pier and to the breakwater in front of the light-keeper's house. At the close of the fiscal year they were not completed.

KINGSVILLE.

Is a port of entry in the County of Essex, on Lake Erie, about 25 miles east of Amherstburg, at the mouth of the River Detroit.

The harbour works at this place, commenced in 1883, were completed early in December last. Some repairs were made to the old pier, and a contract has been entered into for close-piling the west side of the east pier and filling the same.

BELLE RIVER.

Belle River, in the County of Essex, flows into Lake St. Clair, midway between the Rivers Thames and Detroit.

The works referred to in the report of last year were brought to completion.

LITTLE BEAR CREEK.

This creek empties into the Chenal Ecarté, about 16 miles from Chatham and from Wallaceburg.

The dredging referred to in last year's report was continued during the year as far as McLeod's Bridge, and a turning basin formed at that point.

SYDENHAM RIVER.

This river empties into the Chenal Ecarté, the passage between Ste. Anne's Island, River St. Clair and the mainland.

The work of removing sunken logs and other obstructions from the north branch of the river, referred to in the report of last year, was continued, and much relief was afforded.

BAYFIELD.

On the east shore of Lake Huron, 12 miles south of Goderich.

With the amount appropriated the northern side of the harbour, from the entrance, was close-piled, and a small channel opened to enable fishermen to pass their boats in and out.

GODERICH.

At the mouth of the River Maitland, which flows into Lake Huron on the eastern shore, 68 miles north of Sarnia.

The dredge "Challenge" was engaged, in May and June last, in removing the bar at the mouth of the harbour.

PORT ALBERT.

On the east shore of Lake Huron, about 9 miles north of Goderich. The piers at this place received some necessary repairs.

KINCARDINE.

The harbour of Kincardine is at the mouth of the River Penetangore, which flows into Lake Huron, 31 miles north of Goderich.

The south pier was built up, repaired and strengthened, where necessary.

PORT ELGIN.

Port Elgin, on the east coast of Lake Huron, is 24 miles north of Kincardine and 4 miles south from Southampton.

In November last a contract was entered into for the construction of 950 feet of cribwork, to extend from the northerly end of the present breakwater to the shore, and at the close of the year good progress had been made.

SOUTHAMPTON.

In the County of Bruce, at the mouth of the River Saugeen.

The addition of 250 feet to the landing pier was completed in August, 1884, and a talus of stone, to prevent scouring, was placed at its western end.

LION'S HEAD.

On Georgian Bay, about 35 miles north-east of Wiarton.

The work of extending the pier at this place a distance of 150 feet was in November last, placed under contract, and at the close of the year good progress had been made.

OWEN SOUND.

Owen Sound is the chief town of the County of Grey, at the mouth of the River Sydenham, which empties into an arm of Georgian Bay.

With the amount available, a depth of over 16 feet was obtained, up to the inner light.

MEAFORD.

On Georgian Bay, 22 miles from Collingwood and 19 miles east of Owen Sound.

Dredging in the harbour was commenced on the 5th of October, 1884, and continued till the 3rd of November, when 14,996 cubic yards of material had been removed.

THORNBURY.

Thornbury is on Georgian Bay, 13 miles west from Collingwood.
The protection works on the eastern side of the basin have been completed.

COLLINGWOOD.

On the southern shore of Georgian Bay, is a point of departure for steamers plying to Sault Ste. Marie and Lake Superior.

The further length of 600 feet of breakwater referred to in the report of last year, was completed in October, 1884.

On the 10th March last a contract was entered into for the construction of the final length of the breakwater, and at the close of the year the work was under way.

Extensive repairs were made to the breakwater at the entrance of the harbour. Dredging operations were also carried on in the inner harbour and at the slip.

LITTLE CURRENT.

This is the channel taken by vessels using the north channel of Georgian Bay on the route to Sault Ste. Marie, and is 140 miles from Collingwood.

Between the 22nd May and the 20th October, 1884, 4,078 cubic yards of rock were blasted and removed from the channel.

Work had not been resumed at the close of the fiscal year.

WILSON'S ROCK.

In Georgian Bay, about 35 miles from Sault Ste. Marie and 8 miles below Pelee Rapids.

A block of crib work, with a beacon thereon, has been placed on this rock.

SAULT STE. MARIE.

The shire town of Algoma, is situated at the head of the St. Mary's River, which connects Lakes Superior and Huron.

The amount appropriated was expended in dredging the shoal of sandstone rock, off the steamboat wharf at this place, to give a depth of 16 feet.

PORT ARTHUR.

Is situated on Thunder Bay, Lake Superior.

In September, 1884, a contract was entered into for the construction of 2,000 feet of breakwater to protect the wharves of the town from heavy seas, which, during stormy weather, have been thrown upon them. The work has been pushed forward with energy, and at the close of the fiscal year was half completed.

RIVER KAMINISTIGUIA.

This river empties into Thunder Bay, Lake Superior, to the westward of Port Arthur.

During the summer of 1884 a channel 3,700 feet in length and 100 feet in width, with an average depth of 18 feet through the centre and 14½ feet at the sides, was opened through the shoal off the mouth of the river, 121,500 cubic yards of blue clay being removed.

Soundings taken since the work was done show that no filling-in has taken place.

MANITOBA.

RED RIVER.

This river empties into the southern end of Lake Winnipeg.

The work of dredging a channel through the bar obstructing the mouth of the river in Lake Winnipeg was actively prosecuted during the working season of 1884, and much relief has been thereby afforded to vessels navigating the lake and river.

NORTH-WEST TERRITORIES.

RIVER SASKACHEWAN.

With the amount appropriated, obstructions in the river between Edmonton and the mouth were removed, under the directions of Mr. C. J. Brydges, of the Hudson's Bay Company.

BRITISH COLUMBIA.

The report of the Hon. J. W. Trutch, agent of the Dominion in British Columbia, contains a description of the works carried on in that Province under his directions.

ESQUIMALT GRAVING DOCK.

This work was commenced and carried on by the Government of British Columbia, and has been assumed by the Dominion as a Federal work.

A contract for its completion was entered into in November, 1884, with Messrs Larkin, Connolly & Co., the contractors for the harbour works and graving dock at Quebec, and up to the close of the year they had made good progress.

SURVEYS AND EXAMINATIONS.

During the year, surveys and examinations were made at the undermentioned localities; and, with some exceptions, plans reports and estimates have been submitted:—

		P. E. I.
New London,	Queen's Co.	do
Vernon River	do	do
Crapaud	do	do
North Lake,	King's Co.	do
Naufrage Pond	do	do
Campbell's Cove	do	do
Colville Bay	do	do
Summerside,	Prince Co.	do
West Point	do	do
Miminigash	do	do
Delap's Cove,	Annapolis Co.	N.S.
McNair's Cove,	Antigonish Co.	do
Savage Cove,	Cape Breton Co.	do
Port Greville,	Cumberland Co.	do
Parrsboro' Pier	do	do
Wallace	do	do
Digby,	Digby Co.	do
Trout Cove	do	do
Church Point	do	do
Fox Island,	Halifax Co.	do
Port Hood,	Inverness Co.	do
Broad Cove	do	do
Margaree Island	do	do
New Harbour,	Guysboro' Co.	do
Indian Harbour	do	do
White Harbour	do	do
Avonport,	King's Co.	do
Baxter Harbour	do	do
Hall's Harbour	do	do
Chipman Brook	do	do

Victoria Pier	King's Co.	N. S.
Bear Trap Harbour,	Lunenburg Co.	do
Chester	do	do
Great Tancook Island	do	do
Cariboo Island,	Pictou Co.	do
Summerville,	Queen's Co.	do
White Point	do	do
Brooklyn	do	do
Cape Negro,	Shelburne Co.	do
Bay St. Lawrence,	Victoria Co.	do
Big Bras d'Or	do	do
McKay's Point	do	do
Iona	do	do
Short Beach,	Yarmouth Co.	do
Clifton,	Gloucester Co.	N.B.
Grand Anse	do	do
Kingston,	Kent Co.	do
Fond de la Baie	do	do
Chockfish River	do	do
Lower Neguac,	Northumberland Co.	do
Oromocto Island,	Sunbury Co.	do
Fredericton,	York Co.	do
Dalhousie,	Restigouche Co.	do
River Restigouche	do	do
Paspebiac,	Bonaventure Co.	Quebec.
Lake St. John,	Chicoutimi Co.	do
Metabetchouan	do	do
Ste. Anne de la Pérade,	Champlain Co.	do
Longueuil,	Chambly Co.	do
Cap Chatte,	Gaspé Co.	do
House Harbour	do	do
Ste. Anne des Monts,	do	do
Rivière Ouelle,	Kamouraska Co.	do
Repentigny,	L'Assomption Co.	do
Ste. Anne de Beaupré,	Montmorency Co.	do
Portage du Fort,	Pontiac Co.	do
St. Edouard des Mechins,	Rimouski Co.	do
Grandes Bergeronnes,	Saguenay Co.	do
Point aux Esquimaux	do	do
St. Valentine,	St. John's Co.	do
Rivière du Lièvre		do
River Gatineau		do
River Yamaska		do
River Richelieu		do
Lake Megantic		do
Lake Temiscamingue		do
Providence Bay,	Algoma Co.	Ontario
Tolsma	do	do
Port Albert,	Bruce Co.	do
Chantry Island	do	do
Southampton	do	do
Port Elgin	do	do
Kincardine	do	do
River Detroit,	Essex Co.	do
Kingsville	do	do
Owen Sound,	Grey Co.	do
Brooke	do	do

Thornbury	Grey Co.	Ontario.
Meaford	do	do
Bayfield,	Huron Co.	do
Goderich	do	do
Port Stanley,	Elgin Co.	do
Port Burwell	do	do
Little Bear Creek,	Kent Co.	do
Port Franks,	Lambton Co.	do
Hawkesbury,	Prescott Co.	do
Collingwood,	Simcoe Co.	do
River Thames		do
Lake of the Woods		do
Mud Bay		B.C.
Serpentine River		do

A survey was also made and plan prepared for the Chief Architect's Branch, of sites for public building at

Sydney,	Cape Breton Co.	N.S.
and for the Post Office Department of boat houses for the mail service at		
Cape Tormentine,	Westmoreland Co.	N.B.
Cape Traverse,	Prince Co.	P.E.I.

DREDGING.

THE "ST. LAWRENCE."

At the commencement of the fiscal year this dredge was at work on the "outer bar," Miramichi River, N.B., and continued there until the 27th September, when owing to rough weather in the Gulf, work was carried on at the "Grand Dune" only. On the 25th October moorings were lifted and the vessel left for St. John N.B. At the "outer bar" 6,387 cubic yards of fine sand, and at the "Grand Dune" 37,975 cubic yards of mud were removed.

A delay in the voyage took place at Pictou, when the vessel was placed on the marine slip and had her bottom scraped and painted, and some necessary repairs executed, after which the voyage was proceeded with, arriving at St. John on the 14th December.

Work on the "tail" of the Navy Island bar was commenced on the 26th December and continued until the 24th February, when a transfer to the upper part of the harbour was made, and a deep water berth dredged off the "long wharf" and 7,137 cubic yards of material were removed.

On the 15th April work was resumed on the Navy Island bar, but owing to the strong current in the harbour, caused by the freshet in the River St. John, and the ice which was brought into the harbour as well, and the fact that work could only be carried on for a few hours at the time of low tide each day, the dredge was laid up and extensive repairs were made to the engines, boiler, winches and dredging machinery. On the 18th June it was again placed on the island bar and at the close of the year was still operating there, having up to the 30th June removed 10,000 cubic yards of mud, clay and stone.

The work done at the "Outer bar," River Miramichi, was a cut 900 feet in length and 200 feet in width, across the bar, giving from 20 to 21 feet of water, where before there was but from 16 to 18 feet at low water.

At Grand Dune a cut 1,080 feet in length and 140 feet in width has been made, the depth of water being increased from 16 and 17 feet to 21 and 22 feet at low water.

The "tail" of Navy Island bar, St. John Harbour, is a triangular point about 100 feet in length and 180 feet in width at its upper end, and over this area the water has been deepened from 4 feet to 15 feet at low water.

Off the long wharf the dredging extended over an area of 230 feet by 60 feet, and a depth of 18 feet now exists, where in former years only 6 feet could be found—all depths being below low water.

The total quantity of work done during the year was 61,562 cubic yards, the cost amounting to 26.65 cents per yard.

THE "CANADA."

On the 1st July, 1884, this dredge was undergoing repairs at Pictou, N.S. On the 19th work was commenced at Rimouski, Quebec, off and around the wharf at that place, with the view of removing obstructions which interfered with the operations, at low water, of the steam tender serving the ocean mail steamers, and also to provide a basin at the wharf itself. Work here was closed on the 25th October and the vessel sent to Quebec, where it wintered, and the necessary repairs were executed.

Work was resumed on the channel at Mabou, N.S., on the 27th May, and was in progress at the close of the fiscal year.

The work done at Rimouski amounted to 8,122 cubic yards, and at Mabou to 11,340 cubic yards, making a total of 19,462 cubic yards, costing $54\frac{2}{100}$ cents per yard.

THE "NEW DOMINION."

On the 1st of July, 1884, this dredge was engaged in improving the channel of the Lower Jemseg, N.B., opposite Vanwart's Wharf. On the 21st July work was taken up in the same channel, opposite Never's Island. Work on the Oromocto Shoal was commenced on the 18th of August, and brought to a close on the 5th of November. On the 12th of November this dredge was placed at Indiantown, St. John, in front of the public wharf at that place, for the benefit of the steamers plying on the St. John and its tributaries. Between the 19th and 26th November dredging was done for and on account of Mr. W. H. Murray, at his mills, Marble Cove, and the amount, \$300, was placed for such service, was placed to the credit of the Hon. the Receiver-General.

During the winter necessary repairs were executed to the dredge machinery and scows, and on the 14th of May work was commenced on the River St. John, at St. Mary's, opposite Fredericton, and a channel completed to the public landing. At the close of the fiscal year the dredge was engaged in opening a channel to the public wharf at Gibson, about 2 miles below St. Mary's.

In the Jemseg 15,585 cubic yards of sand and clay were removed, and 37,150 cubic yards of the same class of material were taken out of the channel opened through the Oromocto Shoal. At Indiantown 1,615 cubic yards of coal ashes—the refuse from steamers—were removed. In Marble Cove a cut 120 feet long and 25 feet wide, with a depth of 12 feet at low water, was made, and 3,120 cubic yards of clay excavated and removed. At St. Mary's and Gibson 9,965 cubic yards of sand, gravel and clay were removed.

The total quantity dredged during the year was 67,435 cubic yards, costing $11\frac{34}{100}$ cents per yard.

THE "CAPE BRETON."

This dredge was employed at Benacadie Pond, Cape Breton County, N.S., up to the 18th July, 1884, at which date a channel 650 feet in length was completed, after which it proceeded to Christmas Island, working there from the 19th to the 3rd of September, opening a passage into the basin at that place, and in removing a middle ground in front of the wharf. Between the 4th and 18th work was carried on at Campbell's Pond, and between the 19th of September and the 30th October at Why-cocmagh, in deepening the channel up to and in front of the steamboat wharf.

During the winter the "Cape Breton" remained at Hawkesbury, where repairs were executed, but on examination it was found that the boiler had given out and

required renewal. In May last a very small amount of work was done at the marine slip at Hawkesbury, after which the dredge was taken to Pictou and dismantled.

At Benacadie Pond 6,435 cubic yards of mud, gravel and stone were removed; at Christmas Island, 19,045 cubic yards of sand and mud; at Campbell's Pond, 4,940 cubic yards of gravel and clay; at Whyecomagh, 19,760 cubic yards of mud; and at Hawkesbury, 320 cubic yards, the total quantity amounting to 50,500 cubic yards, at a cost of 17.67 cents per yard.

THE "PRINCE EDWARD."

This dredge was, at the beginning of the fiscal year, removed to Summerside, and placed to operate around the Queen's Wharf at that place, to obtain a depth of 12 feet at low water. On the 1st September work was commenced in opening a cut or passage from the main channel 1,800 feet in length, up to the wharf at Hurd's Point, and continued until the 18th November, when the dredging plant was placed in winter quarters.

On the 26th May, work was resumed in the cut to Hurd's Point wharf, and was in progress at the close of the year.

At Summerside 15,855 cubic yards of sand, clay and hard-pan were removed, and at Hurd's Point 39,220 cubic yards of sand and mud. The total work done amounted to 55,075 cubic yards, costing 15.73 cents per yard.

THE "GEO. MCKENZIE."

On the 1st July, 1884, the dredge was at work at Lunenburg, deepening along the ends of the wharves and trying to remove a "middle ground" in the harbour, which was found to be a bed of rock. Work closed at this place on the 11th July, and the plant was taken to River John, Pictou County, where operations in deepening the channel of the river up to that place were commenced on the 11th August, and continued until the 5th September, when they were completed.

Work in D'Escousse Harbour, Richmond County, C.B., commenced on the 1st October and finished on the 24th, it consisting in making a straight cut at the entrance 60 feet in width, with a depth of 10 feet at low water. At the public wharf a quantity of work was done to increase the depth of water and the accommodation required for traffic.

At Port Mulgrave, the terminus of the Eastern Counties Railway, in the Strait of Canso, the water was deepened around the railway wharf, and a berth excavated for the steamer "Norwegian." At Port Hastings a small quantity of dredging was done in making a berth at the wharf.

Winter quarters were had at Port Hawkesbury, and extensive and needed repairs were made to the plant, which were not completed until the 5th June, 1885, when it was sent to Aspy Bay, Victoria County, C.B., for the purpose of opening a channel into the inner bay at that place; but owing to the shifting nature of the sand, of which the shoal is composed, the extremely exposed position of the place and the danger of losing the dredge and the consequent loss of life, the work was abandoned, and on the 30th June the plant was taken to Cheticamp, Inverness County, C.B.

At Lunenburg 3,780 cubic yards of mud and stone were removed; at River John, 4,041 cubic yards of sand and mud; at D'Escousse, 4,860 cubic yards of sand, mud and stone; at Port Mulgrave, 13½ cubic yards of clay and stone; and at Port Hastings, 270 cubic yards of clay and stone. The total quantity removed amounted to 14,323 cubic yards, costing 70.51 cents per yard.

The sum of \$19.27, received from the sale of old zinc at Lunenburg, and \$1,050, received from the Intercolonial Railway for work at Port Mulgrave, have been placed to the credit of the Hon. the Receiver-General.

THE "CHALLENGE."

On the 1st July the "Challenge" was at Kingsville, Ontario, and completed the foundation for the western pier. On the 28th work was commenced at Morpeth,

in dredging for the pier then in course of construction. On the 9th August the dredging plant was taken back to Kingsville, where it remained at work until the 6th November, in dredging the harbour to a depth of 12 feet below ordinary low water in Lake Erie.

During the winter most extensive repairs were made at Walkerville to the dredge, hull and machinery, tug and scows.

On the 28th May, 1885, work was commenced at Goderich, Lake Huron, in the removal, to a depth of 16 feet, of the point of the shoal which extends across the mouth of the harbour, remaining until the 15th June, when the dredge was taken to Kincardine to deepen the channel between the piers at the entrance to the harbour, and at the close of the fiscal year it was engaged in that work.

At Kingsville 19,838 cubic yards of clay, sand and stone were removed; at Morpeth, 2,450 cubic yards of sand and a quantity of old crib-work; at Goderich, 1,675 cubic yards of sand; and at Kincardine, 4,900 cubic yards of fine sand and gravel, making a total of 28,863 cubic yards, costing 71½ cents per yard.

THE "NIPISSING."

At the commencement of the fiscal year this dredge was employed on the Rivière à la Grasse, Rigaud, Quebec, in deepening the channel to 6 feet at low water. On the 9th August following it was removed to St. Charles, on the Richelieu, where work was commenced on the 14th, and continued until the 21st October, in improving the navigable channel of the river at that place.

On the 30th October operations were commenced on the stone shoal in the Ottawa, below Bronson's Wharf, on Victoria Island, and opposite the city of Ottawa, and were continued until the 20th November, when the season of navigation having closed, the plant was placed in winter quarters.

After having been repaired during the winter, the dredge and scows left for and commenced work at Ste. Anne de Bellevue on the 28th May last, in making a foundation for a wharf at that place. On the 18th June work was commenced in the removal of a small obstruction at Point Claire, and on the 24th it left for the St. Francis, where it was engaged in providing a depth of 7 feet in the channel opposite the Pierreville mills, and on the 30th June was engaged in that work.

At Rigaud 6,950 cubic yards of sand, clay, gravel and boulders were removed; at St. Charles, 22,125 cubic yards of clay, boulders and gravel; opposite Ottawa, 1,500 cubic yards of gravel and boulders; at Ste. Anne de Bellevue, 1,457 cubic yards of hard-pan and boulders; at Point Claire, 660 cubic yards of clay and stone; and in the St. Francis 240 cubic yards of sand, making a grand total of 32,932 cubic yards removed, at a cost of 48 cents per yard.

A new scow has been added to this dredge, to replace one which was condemned.

THE "QUEEN OF CANADA."

On the 1st July, 1884, this dredge was employed at Laprairie, in opening a cut 45 feet in width from the main channel of the St. Lawrence up to the public wharf, and also in deepening in front of the wharf, the whole to a depth of 7 feet at ordinary low water, remaining there until the 20th October.

On the 24th October work was commenced at L'Original in dredging off the wharf at that place, and in improving the channel from the Ottawa, a depth of 7 feet having been obtained.

On the 13th November this dredge was taken to Ottawa and placed at work with the "Nipissing" on the stone shoal below Bronson's Wharf, it having been found desirable to take advantage of the lowness of the water in the Ottawa, and the necessity of obtaining as great a depth as possible over what has been a serious obstruction.

During the winter the usual repairs were made, and on the 23rd May last work was again resumed on the Rivière à la Grasse, Rigaud, and at the close of the fiscal year was in course of prosecution.

At Laprairie 18,032 cubic yards of gravel, clay and stone were removed; at L'Orignal, 1,818 cubic yards of clay; opposite Ottawa, 980 cubic yards of boulders; and in the Rivière à la Graise, 5,616 cubic yards of clay, stone and boulders, amounting to a total of 26,476 cubic yards, at a cost of $20\frac{8}{100}$ cents per yard.

THE "ONTARIO."

This dredge, tug "Sir John" and two scows were completed at the commencement of the fiscal year, and on the 14th July were placed at work on the River Napanee, Ontario, and remained there until the 6th August, deepening the river over the portions worked to 10 feet.

The plant was removed to Shannonville, to operate on the shoal at the mouth of the Salmon River. A channel has been opened, from time to time, through the shoal, which is composed of sawdust and slabs, which have been deposited from the saw-mills on the river, which ought to be put a stop to, as there will be a yearly demand on the Department to keep a sufficient depth of water over this shoal, which would not be made or required if slabs, sawdust and mill refuse be kept out of the river. After an opening had been made through the sawdust and slabs, a deep channel was cut by the dredge, which worked until the 15th November, when the plant was taken to Kingston and placed in winter quarters.

On the 13th May last dredging was commenced in removing debris from the slips at Kingston, and finished on 5th June, when the plant was taken to the River Napanee, remaining there until the 20th, when it was transferred to Port Hope, and was engaged up to the close of the year in deepening the entrance to the harbour at that place to 16 feet.

From the River Napanee 16,604 cubic yards of sand and clay were removed; at Shannonville, 41,140 cubic yards of sand, clay and gravel; at Kingston, 8,100 cubic yards of mud and clay; and at Port Hope, 720 cubic yards of sand; making a total quantity of 66,564 cubic yards, at a cost of $11\frac{77}{100}$ cents per yard.

THE "ST. LOUIS."

This dredge was procured for the purpose of enlarging the feeder from the St. Lawrence, near Valleyfield, to the River St. Louis, and was engaged in that work during the whole of the working season of 1884-85, the quantity of materials removed being 36,705 cubic yards, at a cost of $6\frac{5}{8}$ cents per yard.

THE "WINNIPEG."

At the commencement of the fiscal year this dredge was employed in opening a passage or channel through the shoal in Lake Winnipeg, which obstructs the entrance to the mouth of the Red River, and during the season removed a few points in the river, the whole amount done amounting to 58,900 cubic yards of mud, sand and clay.

DREDGING PLANT.

The dredging plant belonging to the Department is as follows:—

In the Maritime Provinces.

The steam hopper dredge—"St. Lawrence."

"	"	"Canada."
The dipper	"	"New Dominion," and seven scows.
"	"	"Cape Breton," and five scows.
"	"	"Prince Edward," and six scows.
"	"	"Geo. McKenzie," and four scows.

In Quebec.

The dipper dredge—"Queen of Canada," and two scows.
" " "Nipissing," and two scows, and tug "Denis."
" " "St. Louis."
The stone lifter "Baillairgé."

In Ontario.

The dipper dredge—"Challenge," two scows, and tug "Trudeau."
" " "Ontario," three scows, and tug "Sir John."

In Manitoba.

The dipper dredge—"Winnipeg," two scows and tug "Sir Hector."

In British Columbia.

An elevator dredge and six scows.
The steam tug "Georgie."

CLASSIFICATION OF Disbursements of the following Dredges, during the Year ended 30th June, 1885.

"ST. LAWRENCE."

Items.	July.	August.	September.	October.	November.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	Grand Totals.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Wages.....	509 28	507 98	507 17	508 10	527 53	527 31	508 33	508 33	508 33	507 98	488 26	486 27	6,094 87
Coal.....	619 05	246 50	250 03	123 75	111 86	90 00	90 00	120 00	.....	540 00	.....	186 05	2,381 24
Provisions	259 03	160 92	207 88	338 04	169 40	25 83	212 65	129 59	103 45	194 54	99 84	169 96	2,071 13
Stores .....	.....	.....	.....	64 16	3 60	.....	.....	.....	.....	16 70	.....	124 57	209 03
Equipment.....	91 14	.....	.....	39 06	.....	96 50	.....	.....	.....	100 74	.....	57 40	387 84
Water.....	.....	.....	.....	21 60	3 00	1 00	.....	.....	.....	.....	.....	.....	25 60
Repairs.....	.....	.....	.....	68 29	305 13	733 70	250 42	20 00	3 25	4 00	50 00	1,211 56	2,821 10
Pilotage.....	135 00	130 00	.....	125 00	52 50	102 50	67 50	60 00	65 00	65 00	2 50	42 00	977 00
Towage.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	25 00	.....	.....	25 00
Wharfage.....	.....	.....	.....	26 60	.....	.....	.....	.....	.....	.....	60 25	21 75	108 60
Contingencies.....	3 08	.....	.....	41 54	.....	45 76	6 75	25 60	.....	184 05	.....	10 00	316 78
Totals.....	1,619 58	1,045 40	1,269 83	1,356 14	1,173 02	1,622 60	1,139 65	883 52	680 03	1,638 01	700 85	2,309 56	15,418 19
Working expenses...	1,619 58	1,045 40	1,095 08	1,287 85	867 89	888 90	889 23	843 52	680 03	1,634 01	700 85	219 49	11,771 83
Repairs, ordinary ...	.....	.....	.....	68 29	.....	.....	.....	.....	.....	4 00	.....	.....	72 29
do extraordinary	.....	.....	174 75	.....	305 13	733 70	250 42	20 00	.....	.....	.....	2,090 07	3,574 07
Totals.....	1,619 58	1,045 40	1,269 83	1,356 14	1,173 02	1,622 60	1,139 65	883 52	680 03	1,638 01	700 85	2,309 56	15,418 19

"CANADA."

Items.	July.	August.	September.	October.	November.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	Grand Totals.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Wages.....	519 85	415 33	415 33	415 33	415 33	415 33	387 33	387 33	387 33	387 33	468 33	390 33	5,004 48
Coal.....	137 80	.....	.....	.....	.....	450 00	.....	.....	18 00	.....	337 56	.....	943 36
Provisions	124 75	131 80	101 68	103 87	65 72	97 69	83 59	69 74	76 42	113 39	194 16	.....	1,152 81

CLASSIFICATION OF Disbursements of the following Dredges, &c.—Continued.

"CAPE BRETON."

Items.	July.	August.	September.	October.	November.	Dec.	Jan.	Feb.	March.	April.	May.	June.	Grand. Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Wages.....	487 75	470 91	484 50	476 69	302 50	147 50	147 50	140 00	195 63	404 50	487 99	117 30	3,745 47
Coal.....	4 00		301 20		17 10							242 71	439 60
Stores.....					4 93			10 70					283 41
Equipment.....			3 99		57 51			77 59			25 50		112 01
Water.....	36 81	56 08	35 00										185 40
Repairs.....			10 20										185 40
Towage.....	675 00	600 00	650 00		675 00	1 09	166 82		55 00	529 17	94 70	126 00	982 98
Wharfage.....					3 80								2,600 00
Contingencies.....		15 50			3 00			42 91					3 80
Totals.....	1,203 56	1,142 49	1,484 89	476 69	1,063 84	148 59	314 32	271 20	250 63	933 67	608 19	486 01	8,384 08
Working expenses... Repairs, ordinary... do extraordinary	1,203 56	1,142 49	1,474 89	476 69	1,033 84				250 63		473 63	117 30	5,952 20
			10 20			148 59	314 32	271 20		933 67	134 56	368 71	260 83
Totals.....	1,203 56	1,142 49	1,484 89	476 69	1,063 84	148 59	314 32	271 20	250 63	933 67	608 19	486 01	2,171 05
													8,384 08

"PRINCE EDWARD."

Wages.....	487 75	445 27	517 37	573 78	522 57	147 50	160 25	140 00	145 00	145 00	346 24	200 70	3,630 73
Coal.....				149 60	4 06								153 66
Stores.....					19 55	15 98					20 00		55 53
Equipment.....				44 00		3 00	238 68				40 00		315 65
Water.....		80 00	40 00	40 00	28 93					5 00	31 33		225 28
				314 23	49 11	35 11		67 16			482 64		1,149 95

Contingencies.....	937 75	535 27	1,632 37	1,796 61	1,024 22	203 53	1 94	4 10	207 16	154 00	9 00	2,600 00
Total.....												15 04
Working expenses...	937 75	535 27	1,632 37	1,492 38	975 11							6,473 09
Repairs, ordinary...					49 11							203 11
do extraordinary				314 23		203 53						1,468 63
Totals.....	937 75	535 27	1,632 37	1,796 61	1,024 22	203 43	393 01	207 16	154 00	920 21	200 70	8,144 83

"GEO. MCKENZIE."

Wages.....	443 26	452 28	452 03	487 75	481 25	147 50	147 50	140 00	145 00	234 75	266 56	3,397 88
Coal.....	167 00	37 40	112 20	122 40								439 00
Stores.....		2 80		2 50								193 72
Equipment.....			154 19							92 04		340 19
Water.....	14 44	24 00	13 50	57 00	12 00							120 94
Repairs.....	1 70	23 17		3 00		127 02		78 79		748 95		1,256 48
Towage.....	1,360 81	525 00	800 00	531 94	379 10							3,596 85
Wharfage.....		10 00										93 80
Contingencies.....		14 45	16 65		15 00							48 45
Totals.....	1,987 21	1,094 10	1,548 57	1,204 59	887 35	274 52	323 31	218 79	145 00	1,075 74	419 74	9,490 31
Working expenses...	1,985 51	1,065 93	1,548 57	1,201 59	887 35							6,976 43
Repairs, ordinary...	1 70	28 17		3 00								177 87
do extraordinary						274 52	323 31	218 79	145 00	1,075 74	132 26	2,336 01
Totals.....	1,987 21	1,094 10	1,548 57	1,204 59	887 35	274 52	323 31	218 79	145 00	1,075 74	419 74	9,490 31

Contingencies.....	6 50	80 00	24 56	110 00 6 17	5 55	302 52	331 52	549 39	1,491 88	4,402 34	..... 9 81	50 00 100 56	235 00 233 15
Totals	975 27	871 76	746 90	1,014 98	701 48	302 52	331 52	549 39	1,491 88	4,402 34	2,585 54	1,837 86	15,811 54
Working expenses...	828 77	739 92	690 42	882 67	638 60	140 96	282 97	527 39	719 85	741 61	911 82	1,398 36	8,491 34
Repairs, ordinary ...	148 50	141 84	56 48	132 31	62 89	73 06	.....	21 00	.....	272 00	797 82	439 50	2,146 39
do extraordinary .....	.....	.....	.....	.....	.....	88 50	48 55	.....	772 03	3,388 73	876 00	.....	6,173 81
Totals	975 27	871 76	746 90	1,014 98	701 48	302 52	331 52	549 39	1,491 88	4,402 34	2,585 54	1,837 86	15,811 54

"QUEEN."

Wages.	336 86	332 40	327 00	312 00	279 00	62 00	.....	.....	257 50	185 64	274 88	2,377 28
Coal. ....	.....	312 00	27 00	17 88	.....	77 22	.....	.....	.....	290 00	90 00	814 10
Wood. ....	.....	.....	.....	.....	24 00	4 75	.....	.....	.....	.....	.....	28 75
Provisions.	72 00	84 00	84 00	84 00	39 20	59 20	.....	.....	50 38	29 55	72 00	523 95
Stores.	1 53	3 31	.....	19 83	31 25	1 60	.....	.....	.....	68 55	2 62	179 07
Equipment. ....	.....	.....	70 36	.....	.....	.....	.....	.....	3 75	4 80	51 63	138 54
Repairs.	12 15	35 30	28 91	12 36	35 70	82 00	.....	.....	306 35	361 01	10 47	1,018 82
Repairs, do extraordinary	.....	.....	.....	122 75	.....	.....	.....	.....	.....	5 50	.....	138 25
Tenage. ....	.....	.....	80 00	.....	2 50	.....	.....	.....	6 95	.....	8 31	108 76
Contingencies. ....	.....	11 00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Totals.	422 54	778 01	617 27	568 82	411 65	294 77	.....	144 57	624 93	945 05	509 91	5,317 52
Working expenses.	410 39	742 71	588 36	556 46	375 35	212 77	.....	.....	318 58	591 04	499 44	4,288 70
Repairs, ordinary	12 15	35 30	28 91	12 36	35 70	82 00	.....	.....	122 04	361 01	10 47	689 94
do extraordinary	.....	.....	.....	.....	.....	.....	.....	.....	184 31	.....	.....	328 88
Totals.	422 54	778 01	617 27	568 82	411 65	294 77	.....	144 57	624 93	945 05	509 91	5,317 52

[illegible]

CLASSIFICATION AND QUANTITIES OF MATERIAL REMOVED BY THE FOLLOWING DREDGES, DURING THE YEAR ENDING 30TH JUNE, 1885.

"ST. LAWRENCE."

DESCRIPTION OF MATERIAL DREDGED.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.	Grand Totals.
Clay.....	.....	.....	.....	.....	.....	700	2,978	2,975	.....	87½	.....	700	Cubic yds. 7,440½
Logs, old timber, iron, clay and stone	.....	.....	.....	.....	.....	.....	.....	1,098	3,674	4,287½	.....	700	9,759½
Sand, ordinary	700	4,375	1,312½	.....	.....	.....	.....	.....	.....	.....	.....	.....	6,387½
Mud.....	10,850	5,950	11,900	9,275	.....	.....	.....	.....	.....	.....	.....	.....	37,975
Totals.....	11,550	10,325	13,212½	9,275	.....	700	2,978	4,073	3,674	4,375	.....	1,400	61,562½

"CANADA."

Boulders .....	.....	.....	.....	360	.....	.....	.....	.....	.....	.....	.....	.....	360
Clay and stone.....	630	2,700	3,420	382½	.....	.....	.....	.....	.....	.....	.....	.....	7,122
Sand, ordinary	630	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11,340	11,340
Mud.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	630
Totals.....	1,260	2,700	3,420	742½	.....	.....	.....	.....	.....	.....	.....	11,340	19,462½

"NEW DOMINION."

Boulders.....	.....	.....	.....	.....	950	.....	.....	.....	.....	.....	.....	.....	950
Coal ashes .....	.....	.....	.....	.....	1,615	.....	.....	.....	.....	.....	.....	.....	1,615
Clay .....	.....	.....	.....	2,750	2,170	.....	.....	.....	.....	.....	.....	770	15,040
Clay and stone.....	3,825	.....	5,525	.....	.....	.....	.....	.....	.....	.....	.....	4,435	4,435
Sand, ordinary	5,390	12,070	9,325	11,950	1,900	.....	.....	.....	.....	.....	70	.....	40,705
Sand, very fine.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,120	3,570	4,690
Totals.....	9,215	12,070	14,850	14,700	6,635	.....	.....	.....	.....	.....	1,190	8,775	67,435

CLASSIFICATION AND QUANTITIES OF MATERIALS REMOVED BY THE FOLLOWING DREDGES, &c.—Continued.

"NIPISSING."

DESCRIPTION OF MATERIAL DREDGED.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June	Grand Totals.
Hard-pan	125	1,635	1,598	3,540	900						45	683	Cubic yds. 728
Boulders	400	225	640		600						45	684	8,527
Gravel	2,875	4,005	7,062	4,020									1,865
Clay													17,962
Clay and stone													660
Sand, ordinary	2,950											240	3,190
Totals	6,350	5,865	9,300	7,560	1,500						90	2,267	32,932

"QUEEN."

Boulders			840	168	980							1,170	2,150
Gravel			1,033	3,220	1,848							3,046	1,008
Clay	4,032	4,004	3,444	320							952		20,546
Clay and stone	784	1,064	140	336								448	2,772
Totals	4,816	5,068	4,424	3,724	2,828						952	4,664	26,476

"ONTARIO."

Boulders	3,280	1,031	690	480									5,484
Gravel	480	1,033											1,513
Clay	5,940	7,410	12,573	9,540	590						5,400	2,700	44,553
Sand, ordinary	5,024	2,350		1,010	3,030							2,520	13,934
Mud											1,080		1,080
Totals	10,964	13,520	14,640	11,240	4,500						6,480	5,220	63,564

DREDGE STATEMENT showing Material removed at different Localities; Total Annual Expenditure on each Dredge, and Average Cost per cubic yard.

"CHALLENGE."

Localities.	Hard Pan.	Clay and Stone.	Sand, Ordinary.	Sand, Fine.	Clay.	Gravel.	Boulders.	Mud.	Totals.
Kingsville									
Morpeth		1,844	17,769		225				19,838
Goderich			2,450						2,450
Kincardine			1,675			800			1,675
			4,100						4,900
		1,844	25,994		225	800			28,863

Total Annual Expenditure, \$20,670.68.

Cost per cubic yard, 71½c.

90

"NIPISSING."

Rigaud			2,950		2,875	625	500		6,950
St. Charles					15,087	640	6,398		22,125
Ottawa						600	900		1,500
Ste. Anne's	728						729		1,457
Point Claire		660	240						660
Pierreville Mills									240
	728	660	3,190		17,962	1,865	8,527		32,932

Total Annual Expenditure, \$15,811.54.

Cost per cubic yard, 48½c.

"QUEEN."

Laprarie					14,700	1,008			18,032
L'Original	2,324				1,818				1,818
Ottawa							980		1,880
Rigaud		443			3,998		1,170		5,616
		2,772			20,546	1,008	2,150		26,476

Total Annual Expenditure, \$5,317.52.

Cost per cubic yard, 20½c.

"ONTARIO."

Napanee River	6,824	9,780	1,513	5,484	1,080	16,600
Shannonville	6,390	27,753	1,513	5,484	1,080	41,140
Kingston	720	7,020				8,100
Port Hope	13,934	41,563	1,513	5,484	1,080	720
						68,564

Cost per cubic yard, 117c.

"ST. LOUIS,"

[illegible]

Cost per cubic yard, 65c.

Total Annual Expenditure, \$2,435.70.

DETAILS of Dredging in the Maritime Province

DREDGE.	LOCALITY.	COUNTY.	NEW BRUNSWICK.		
			Quantity.	Cost.	Total Cost
			C. yds.	\$ cts.	\$ cts.
"New Dominion"	Mouth of Jemseg	Queen's Co.	15,585	1,860 86	.....
	Oromocto Shoals	Sunbury	37,150	4,435 74	.....
	Indiantown Wharf	St. John	1,615	192 83	.....
	Murray's Mills	do	3,120	372 52	.....
	St. Mary's Ferry	York	4,760	568 35	.....
	Gibson	do	5,205	621 47	8,051 7
"Canada "	Mabou	Inverness .....	.....	.....	.....
"Cape Breton "	Benacadie Pond	Cape Breton .....	.....	.....	.....
	Christmas Island	do .....	.....	.....	.....
	Campbell's Pond	Inverness .....	.....	.....	.....
	Whycocomagh	do .....	.....	.....	.....
	Marine Slip Co.	Richmond .....	.....	.....	.....
"Prince Edward "	Summerside	Prince .....	.....	.....	.....
	Hurd's Point Pier	do .....	.....	.....	.....
"St. Lawrence "	Grand Dune	Northumberland ..	37,975	10,121 67	.....
	Outer Bar	do	6,387 1/2	1,702 50	.....
	Navy Island	St. John	10,062 1/2	2,682 01	.....
	Long Wharf	do	7,137 1/2	1,902 40	16,408 1
"Geo. McKenzie "	Lunenburg	Lunenburg .....	.....	.....	.....
	River John	Pictou .....	.....	.....	.....
	Descousse	Richmond .....	.....	.....	.....
	Port Mulgrave	Guysboro' .....	.....	.....	.....
	Port Hastings	Inverness .....	.....	.....	.....
			128,997 1/2	.....	24,460

DREDGE.	NEW BRUNSWICK.		NOVA SCOTIA.	
	Quantity.	Cost.	Quantity.	Cost.
	C. yds.	\$ cts.	C. yds.	\$ cts.
"New Dominion "	67,435	8,051 77	.....	.....
"Canada "	.....	.....	11,340	6,228
"Cape Breton "	.....	.....	50,500	8,922
"Prince Edward "	.....	.....	.....	.....
"St. Lawrence "	61,562 1/2	16,408 58	.....	.....
"Geo. McKenzie "	.....	.....	14,323 1/2	10,099
		128,997 1/2	24,460 35	76,163 1/2
				25,250

for the Year ended 30th June, 1885.

NOVA SCOTIA.			PRINCE EDWARD ISLAND.			Quantity by each Dredge.	Total Expenditure.
Quantity.	Cost.	Total Cost.	Quantity.	Cost.	Total Cost.		
C. yds.	\$ cts.	\$ cts.	C. yds.	\$ cts.	\$ cts.	C. yds.	\$ cts.
						67,435	8,051 77
11,340	6,228 19	6,228 19				11,340	6,228 19
6,435	1,136 98						
19,045	3,364 98						
4,940	872 83						
19,760	3,491 31						
320	56 53	8,922 63				50,500	8,922 63
			15,855	2,495 34			
			39,220	6,172 67	8,668 01	55,075	8,668 01
						61,562½	16,408 58
3,780	2,665 40						
4,041	2,849 43						
4,860	3,426 93						
1,372½	967 78						
270	190 37	10,099 91				14,323½	10,099 91
6,163½		25,250 73	55,075		8,668 01	260,236	58,379 09

PRINCE EDWARD ISLAND.		Total Quantity.	Expenditure Dredging.	Super-intendence.	Total Expenditure.	Cost per Cubic Yard.
Quantity.	Cost.					
C. yds.	\$ cts.	C. yds.	\$ cts.	\$ cts.	\$ cts.	C
		67,435	7,565 78	485 99	8,051 77	11·94004
		11,340	5,852 27	375 92	6,228 19	54·9223
		50,500	8,384 08	538 55	8,922 63	17·6685
55,075	8,668 01	55,075	8,144 83	523 18	8,668 01	15·7385
		61,562½	15,418 19	990 39	16,408 58	26·6535
		14,323½	9,490 31	609 60	10,099 91	70·513
55,075	8,668 01	260,236	54,855 46	3,523 63	58,379 09	22·43

EXPENDITURE for Dredging in Nova Scotia, for the Thirteen Years ended 30th June, 1885.

County.	Locality.	Total for Twelve Years ended 30th June, 1884.				For the Year 1884-85.				Total Quantity.	Total Cost.	Cost for each County.
		Quantity.		Cost.		Quantity.	Cost.	Cost for County.				
		C. yds.	\$ cts.	C. yds.	\$ cts.			C. yds.	\$ cts.		\$ cts.	\$ cts.
Antigonish	Antigonish	22,025	3,649 15	.....	.....	.....	.....	.....	.....	22,025	3,649 15	.....
	Harbour au Beuche	10,568	2,498 48	.....	.....	.....	.....	.....	.....	10,568	2,498 48	.....
	Tracadie	2,580	675 26	.....	6,822 89	.....	.....	.....	.....	2,580	675 26	6,822 89

Annapolis	Annapolis.	2,825	1,635 68	.....	1,635 68	.....	.....	.....	.....	2,825	1,635 63	1,635 68

Cape Breton.....	Lingan	22,267	9,275 56	.....	.....	.....	.....	.....	.....	22,267	9,275 56	.....
	Sydney	54,600	17,781 54	.....	.....	.....	.....	.....	.....	54,600	17,781 54	.....
	Little Glace Bay.	27,212½	9,464 94	.....	.....	.....	.....	.....	.....	27,212½	9,464 94	.....
	Port Caledonia	17,412½	8,242 21	.....	.....	.....	.....	.....	.....	17,412½	8,242 21	.....
Colchester	Benacadie Pond	14,425	4,856 92	.....	.....	6,435	1,136 98	.....	.....	20,860	5,993 90	.....
	Christmas Island.....	.....	.....	.....	49,621 17	19,045	3,364 98	4,501 96	.....	19,045	3,364 98	54,123 13

Cumberland	Tatamagouche	43,500	10,864 31	.....	10,864 31	.....	.....	.....	.....	43,500	10,864 31	10,864 31

Digby	Parrsboro'	42,595	12,804 68	.....	.....	.....	.....	.....	.....	42,595	12,804 68	.....
	Wallace	50,885	9,908 28	.....	22,712 96	.....	.....	.....	.....	50,885	9,908 28	22,712 96

Guysboro'	Digby	12,585	5,056 29	.....	5,056 29	.....	.....	.....	.....	12,585	5,056 29	5,056 29

Halifax	Guysboro'	5,400	1,413 53	.....	.....	.....	.....	.....	.....	5,400	1,413 53	.....
	Larry's River	26,230	6,546 70	.....	.....	.....	.....	.....	.....	26,230	6,546 70	.....
	Port Mulgrave	2,160	782 00	.....	.....	1,372½	967 73	.....	.....	3,532½	1,749 78	.....
	Sherbrooke	1,260	496 49	.....	9,238 72	.....	.....	.....	.....	1,260	496 49	10,206 50
.....

.....	Chezzeetook	3,920	2,593 71	.....	.....	.....	.....	.....	.....	3,920	2,593 71	.....
	Halifax Ferry	6,177	2,063 38	.....	.....	.....	.....	.....	.....	6,177	2,063 38	.....
	Herring Cove.....	12,111	8,015 50	.....	.....	.....	.....	.....	.....	12,111	8,015 05	.....
	Ketch Harbour	2,989	935 59	.....	.....	.....	.....	.....	.....	2,989	985 59	.....
.....	Richmond Wharf	792	182 53	.....	.....	.....	.....	.....	.....	792	182 53	.....

.....	Roche's Wharf.....	1,750	620 28	.....	.....	.....	.....	.....	.....	1,750	620 28	.....

.....	Halifax Railway Terminus	19,290	6,187 38	.....	.....	.....	.....	.....	.....	19,290	6,187 38	.....

.....	Jeddore	21,515	4,958 56	.....	25,606 48	.....	.....	.....	.....	21,515	4,958 56	25,606 48

Lunenburg.....	Campbell's Pond.....	54,135	11,731 08	17,661 81	29,392 89	11,340	6,228 19	10,762 70	19,160	3,491 31	40,175 59
	Port Hastings.....	41,107	19,529 17	6,958 65	30,563 35	3,780	2,665 40	.....	4,940	872 83	.....
	Cheticamp.....	.....	6,958 65	5,075 53	.....	.....	.....	.....	270	190 37	.....
	Mabou.....	.....	17,661 81	.....	.....	.....	.....	.....	54,135	11,731 08	.....
	Lunenburg.....	.....	19,529 17	6,958 65	30,563 35	3,780	2,665 40	.....	52,447	23,890 00	.....
Pictou.....	Mahone Bay.....	11,610	6,958 65	5,075 53	30,563 35	.....	.....	2,665 40	70,510	22,194 57	33,228 75
	Vogler's Cove.....	.....	5,075 53	.....	.....	.....	.....	.....	21,844	5,938 65	.....
	Acadia Coal Co.'s Wharf.....	10,240	3,560 36	.....	.....	.....	.....	.....	11,610	5,075 53	.....
	Albion Mines.....	9,745	2,181 25	.....	.....	.....	.....	.....	10,240	3,560 36	.....
	East River.....	104,795	25,067 22	.....	.....	.....	.....	.....	9,475	2,181 25	.....
	Halifax Coal Co.'s Wharf.....	1,650	359 90	.....	.....	.....	.....	.....	104,795	25,067 22	.....
	Pictou Public Wharf.....	31,920	7,433 56	.....	.....	.....	.....	.....	1,650	359 90	.....
	do Railway Wharf.....	29,889	9,264 29	.....	.....	.....	.....	.....	31,920	7,433 56	.....
	do Landing.....	7,345	2,880 01	.....	.....	.....	.....	.....	29,889	9,264 29	.....
	Vale Colliery Wharf.....	1,395	682 15	.....	.....	.....	.....	.....	7,345	2,880 01	.....
Queen's.....	River John, &c.....	81,132	19,394 55	.....	.....	4,041	2,849 43	.....	1,395	682 15	.....
	Middle River.....	13,400	4,274 66	.....	.....	.....	.....	.....	86,173	22,243 88	.....
	New Glasgow.....	26,310	5,705 09	80,802 94	.....	.....	.....	2,849 43	13,400	4,274 66	83,652 37
	Liverpool.....	12,940	4,762 38	4,762 38	.....	.....	.....	.....	26,310	5,705 09	4,762 38
	D'Escousse, Cap la Ronde.....	7,000	2,535 20	.....	.....	4,860	3,426 93	.....	12,940	4,762 38	.....
Shelburne.....	St. Peter's Canal.....	78,891	24,277 56	.....	.....	.....	.....	.....	11,860	5,962 13	.....
	St. Peter's.....	7,150	2,407 41	.....	.....	.....	.....	.....	78,891	24,277 56	.....
	Grand Goulet.....	23,584	5,570 49	.....	.....	.....	.....	.....	7,150	2,407 41	.....
	River Bourgeois.....	18,920	4,468 87	.....	.....	.....	.....	.....	23,584	5,570 49	.....
	Marine Slip.....	.....	.....	39,259 53	.....	320	56 53	3,483 46	18,920	4,468 87	42,742 99
Yarmouth.....	Lockeport.....	20,825	6,334 85	6,334 85	.....	.....	.....	.....	320	56 53	.....
	Yarmouth.....	42,517	13,687 25	13,687 25	.....	.....	.....	.....	20,825	6,334 85	6,334 85
	Hants.....	5,450	1,627 60	1,627 60	.....	.....	.....	.....	42,517	13,687 25	13,687 25
	Windsor.....	1,157,328	337,989 29	337,989 29	337,989 29	76,163½	25,250 73	25,250 73	5,450	1,627 60	1,627 60
	.....	.....	.....	.....	.....	.....	.....	.....	1,239,491½	363,240 02	363,240 02

EXPENDITURE for Dredging in New Brunswick, for the Thirteen Years ended 30th June, 1885.

County.	Locality.	Total for Twelve Years ended 30th June, 1884.			For the Year 1884-85.			Total Quantity.	Total Cost.	Cost for each County.	
		Quantity.		Cost.	Quantity.		Cost.				
		C. yds.	\$	cts.	C. yds.	\$	cts.	C. yds.	\$	cts.	
Gloucester	Bathurst	72,607½	20,629	52	.....	.....	72,607½	20,629	52	20,629 52
Kent.....	Richibucto.....	47,735	14,299	54	.....	.....	47,735	14,299	54	14,299 54
	Cocagne.....	14,580	4,831	02	.....	.....	14,580	4,831	02	4,831 02
	Buctouche	13,005	4,934	24	.....	.....	13,005	4,934	24	4,934 24
	do Priest's Point.....	3,510	1,110	70	.....	.....	3,510	1,110	70	1,110 70
	do Chapel Point.....	4,140	1,310	07	.....	.....	4,140	1,310	07	1,310 07
	do Robertson's Wharf..	45	14	23	.....	.....	45	14	23	14 23
Northumberland ..	Horse Shoe.....	160,417½	44,594	13	.....	.....	160,417½	44,594	13	44,594 13
	Outer Bar.....	6,737½	2,330	17	.....	.....	13,125	4,032	67	4,032 67
	Grand Dune	37,975	10,121	67	37,975	10,121	67	10,121 67
Queen's	Grand Lake.....	34,160	6,375	44	.....	.....	34,160	6,375	44	6,375 44
	do McMann's Cove...	20,440	4,522	82	.....	.....	20,440	4,522	82	4,522 82
	Jemseg	45,720	10,256	88	.....	.....	61,305	12,117	74	12,117 74
	Washdemoak	48,975	6,340	83	15,585	1,860	86	48,975	6,340	83	6,340 83
St. John.....	L. C. Railway Terminus.....	139,810	37,130	01	.....	.....	139,810	37,130	01	37,130 01
	Navy Island	6,300	2,754	17	10,062½	2,682	01	16,362½	5,438	18	5,438 18
	Marble Cove.....	29,925	4,374	40	.....	.....	29,935	4,374	40	4,374 40
	Murray's Mills	9,310	1,360	93	3,120	372	52	12,430	1,733	45	1,733 45
	Indiantown Wharf	1,615	192	83	1,615	192	83	192 83
	Long Wharf.....	7,137½	1,902	40	7,137½	1,902	40	1,902 40
Sunbury.....	Oromocto.....	107,003	22,671	12	37,150	4,435	74	144,153	27,106	86	27,106 86
Westmoreland	Pointe du Chêne	33,750	9,432	00	.....	.....	33,750	9,432	00	9,432 00
York	Fredericton	39,395	7,699	15	.....	.....	39,395	7,699	15	7,699 15
	St. Mary's Ferry	10,810	6,239	01	4,760	568	35	15,570	6,827	36	6,827 36
	Gibson.....	5,205	621	47	5,205	621	47	621 47
* Dredge "New Dominion "	.....	.....	777	84	.....	.....	.....	777	84	777 84
		848,375½	214,008	22	128,997½	24,460	35	977,373	238,488	57	238,488 57

* Does not in commission in 1880-81: above expenses for caretaking and repairs.

EXPENDITURE FOR Dredging in Prince Edward Island, for the Thirteen Years ended 30th June, 1885.

County.	Locality.	Total for Twelve Years ended 30th June, 1884.				For the Year 1884-85.				Total Quantity	Total Cost.	Cost for each County.
		Quantity.		Cost.		Quantity.		Cost.				
		C. yds.	\$ cts.	C. yds.	\$ cts.	C. yds.	\$ cts.	C. yds.	\$ cts.			
King's.....	Grand River.....	46,140	8,963 97	.....	.....	.....	.....	46,110	8,963 97	.....	.....	.....
	Montagne River.....	106,140	17,119 43	.....	.....	.....	.....	106,140	17,119 43	.....	.....	.....
Queen's.....	Murray Harbour.....	44,430	7,378 33	.....	.....	.....	.....	44,430	7,378 33	.....	.....	33,461 73
	Charlottetown Railway Wharf	41,303	10,261 56	.....	.....	.....	.....	41,303	10,261 56	.....	.....	.....
	do Ferry.....	4,045	670 61	.....	.....	.....	.....	4,045	670 61	.....	.....	.....
	Crapaud.....	75,970	19,151 46	.....	.....	.....	.....	75,970	19,151 46	.....	.....	.....
	Pownal.....	44,400	9,604 55	.....	.....	.....	.....	44,400	9,604 55	.....	.....	.....
	Rocky Point.....	91,440	14,661 16	.....	.....	.....	.....	91,440	14,661 16	.....	.....	.....
	Vernon River.....	17,860	6,326 72	.....	.....	.....	.....	17,860	6,326 72	.....	.....	.....
	Wood Islands.....	2,780	548 00	.....	.....	.....	.....	2,780	548 00	.....	.....	.....
	Nine Mile Creek.....	31,650	6,286 46	.....	.....	.....	.....	31,650	6,286 46	.....	.....	.....
	Hickey's Wharf.....	750	150 51	.....	.....	.....	.....	750	150 51	.....	.....	.....
Prince.....	Carr's Point.....	12,165	2,441 28	.....	.....	.....	.....	12,165	2,441 28	.....	.....	.....
	Pinette.....	3,825	756 24	.....	.....	.....	.....	3,825	756 24	.....	.....	.....
	Fort Augustus.....	3,195	631 68	.....	.....	.....	.....	3,195	631 68	.....	.....	.....
	South Port Ferry.....	33,015	5,528 75	.....	.....	.....	.....	33,015	5,528 75	.....	.....	77,021 98
	Summerside.....	.....	.....	.....	.....	.....	.....	15,855	2,495 34	.....	.....	.....
	Hurd's Point Pier.....	.....	.....	.....	.....	.....	.....	39,220	6,172 67	.....	.....	8,668 01
		559,078	110,483 71	.....	.....	55,075	8,668 01	614,153	119,151 72	.....	.....	119,151 72

EXPENDITURE for Dredging in Quebec, for the Thirteen Years ended 30th June, 1885, from Appropriations for Maritime Province

County.	Locality.	Total for Twelve Years ended 30th June, 1884.		For the Year 1884-85.		Total Quantity	Total Cost.	Cost for each County.
		Quantity.	Cost.	Quantity.	Cost.			
Magdalen Islands, Co. Gaspé.....	Ronse Harbour.....	6,800	2,392 92	.....	.....	6,800	2,392 92	.....
	Amherst Harbour.....	495	242 05	.....	.....	495	242 05	2,634 97
Témiscouata.....	River du Loup.....	2,587½	825 47	.....	.....	2,587½	825 47	825 47
	* Rimouski Railway Wharf.....	.....	.....	8,122½	3,997 59	8,122½	3,997 59	3,997 59
Rimouski.....		9,882½	3,460 44	8,122½	3,997 59	18,005	7,458 03	7,458 03

* From amount voted for Quebec dredgings.

STATEMENT of Dredging, showing Quantities removed in each Province, and cost of each Dredging for the Thirteen Years ended 30th June, 1885.

FISCAL YEAR.	NEW BRUNSWICK.			NOVA SCOTIA.			QUEBEC.			PRINCE EDWARD ISLAND.			Total Quantity.	Total Expenditure		Cost per Cubic Yard.	
	Quantity.		Cost.	Quantity.		Cost.	Quantity.		Cost.	Quantity.		Cost.		C. yds.	\$		cts.
	C. yds.	\$	cts.	C. yds.	\$	cts.	C. yds.	\$	cts.	C. yds.	\$	cts.					
1872-73	38,060	13,240 50		23,260	8,422 70		.....	.....	.....	.....	.....	.....	61,320	21,663 20	0 35-328	
1873-74	57,725	14,395 57		18,600	6,545 61		.....	.....	.....	.....	.....	.....	83,125	23,334 10	0 28-071	
1874-75	78,223	17,325 05		24,416	13,238 83		6,800	2,392 92	.....	.....	.....	.....	121,294	40,456 77	0 33-354	
1875-76	79,935	17,040 52		91,974	21,985 90		.....	.....	.....	.....	.....	.....	230,192	49,818 22	0 21-642	
1876-77	97,690	23,161 90		127,785	34,846 74		.....	.....	.....	.....	.....	.....	299,935	70,766 91	0 23-594	
1877-78	81,070	23,323 92		106,857	29,607 94		.....	.....	.....	.....	.....	.....	270,787	64,943 04	0 23-983	
1878-79	132,555	27,400 22		116,307	28,267 59		.....	.....	.....	.....	.....	.....	295,352	64,831 88	0 21-950	
1879-80	63,540	16,581 79		127,684	34,765 84		765	374 08	228,379	64,396 69	.....	.....	228,379	64,396 69	0 28-197	
1880-81	44,315	12,385 85		87,117	23,061 64		2,317	693 44	46,335	9,298 53	.....	.....	180,085	45,439 46	0 25-232	
1881-82	79,640	18,626 87		89,566	33,363 71		.....	.....	47,325	9,356 57	.....	.....	216,531	61,347 15	0 28-331	
1882-83	48,565	13,422 70		143,616	42,996 93		.....	.....	68,533	11,080 37	.....	.....	260,716	67,500 00	0 25-890	
1883-84	47,057	17,103 38		157,559	49,050 58		.....	.....	79,750	13,355 05	.....	.....	284,367	79,509 01	0 27-961	
1884-85	128,997	24,460 35		76,163	25,250 73		8,122	3,997 59	55,075	8,668 01	.....	.....	268,358	62,376 68	0 23-25	
	977,373	238,468 62		1,190,906	351,304 74		18,005	7,458 03	614,158	119,151 72	.....	.....	2,800,442	716,383 11	0 25-58	

STATEMENT of Dredging, showing Quantities removed by hand in each Province, and cost of each Dredging for the Thirteen Years ended 30th June, 1885.

1878-79	245	555 13	245	555 13	2 26-58
1879-80	12,370	3,666 90	12,370	3,666 90	0 29-64
1880-81	11,140	2,560 25	11,140	2,560 25	0 22-98
1881-82	10,640	2,650 00	10,640	2,650 00	0 24-90
1882-83	8,190	2,500 00	8,190	2,500 00	0 30-41
1883-84	5,460	2,500 00	5,460	2,500 00	0 45-78
1884-85					
	48,045	14,432 28	48,045	14,432 28	0 30-03

STATEMENT of Dredging in the Maritime Provinces, showing quantities removed by and expenditure of each Dredge for the Thirteen Years ended 30th June, 1885.

Dredge.	Total Quantities and Cost for the Thirteen Years, from 1872-73 to 1883-84.			1884-85.			Total for Thirteen Years ended 30th June, 1885.		
	Quantity.	Cost.	Per Cubic yard.	Quantity.	Cost.	Per Cubic yard.	Quantity.	Cost.	Per Cubic yard.
	C. yards.	\$ cts.	Cts.	C. yards.	\$ cts.	Cts.	C. yards.	\$ cts.	Cts.
"New Dominion"	441,158	95,570 70	21-66	67,435	8,051 77	11-940	508,593	103,622 47	20-37
"Canada"	370,889	122,344 55	32-98	11,340	6,228 19	54-922	382,229	128,572 74	33-63
"Cape Breton"	452,228	113,558 63	25-11	50,500	8,922 63	17-668	502,728	122,481 26	24-36
"Prince Edward"	569,913	112,234 64	19-69	55,075	8,668 01	15-738	624,988	120,902 65	19-34
"St. Lawrence"	438,529	135,788 78	30-96	61,562 1/2	16,408 58	26-663	500,091 1/2	152,197 36	30-43
"Geo. McKenzie"	253,907	72,009 13	28-36	14,323 1/2	10,099 91	70-513	268,230 1/2	82,109 04	30-61
	2,526,624	651,506 43	25-78	260,236	58,379 09	22-43	2,786,860	709,885 52	25-47

STATEMENT of Dredging performed by Hand in the Maritime Provinces, showing quantities removed and expenditure at each locality for Thirteen Years ended 30th June, 1885.

Locality.	1872-73 to 1883-84=Twelve years.			1884-85.			Total for Thirteen Years ended 30th June, 1885.		
	Quantity.	Cost.	Per Cubic yard.	Quantity.	Cost.	Per Cubic yard.	Quantity.	Cost.	Per Cubic yard.
	C. yards.	\$ cts.	Cts.	C. yards.	\$ cts.	Cts.	C. yards.	\$ cts.	Cts.
Parrsboro'	42,595	12,804 68	30-06	Nil.	Nil.	Nil.	42,595	12,804 68	30-06
Windsoor	5,450	1,627 60	29-86	Nil.	Nil.	Nil.	5,450	1,627 60	29-86
	48,045	14,432 28	.....	Nil.	Nil.	Nil.	48,045	14,432 28	30-03

APPENDIX No. 6.

R E P O R T S

ON PROPOSED IMPROVEMENT OF

The Upper Ottawa River and Lake Témiscamingue,

BY

H. F. PERLEY, CHIEF ENGINEER, AND THOS. GUERIN, C.E.,

TOGETHER WITH A MEMORANDUM BY

REV. C. A. M. PARADIS, O.M.I.

APPENDIX No. 6.

REPORTS OF MESSRS. H. F. PERLEY AND THOS. GUERIN, AS TO THE WORKS, RESPECTING WHICH APPLICATION HAS BEEN MADE, ON THE RIVER OTTAWA AND LAKE TÉMISCAMINGUE, TOGETHER WITH THE MEMORANDUM OF THE REV. FATHER PARADIS, O.M.I.

Ref. No. 57,815.

OTTAWA, 18th March, 1885.

SIR,—As during the past few years several projects for the improvement of the Upper Ottawa, and for facilitating the descent of timber, had been brought to the notice of the Hon. the Minister, an appropriation was made by Parliament, during the Session of 1884, to defray the expense of the examination it was deemed necessary should be made.

This examination was entrusted to Mr. Thomas Guerin, an engineer of the Department, whose scientific knowledge and attainments, and his many years of practice in his profession, eminently fitted him for the task thus devolved upon him, and I have now to submit, for the information of and consideration by the Hon. the Minister, the report and plans prepared by that gentleman.

The duty performed by Mr. Guerin is summarily stated in the following extract from the instructions prepared for his guidance:—

“There are four projects for the improvement of the upper portion of the Ottawa:

“1st. To construct a dam at the Mountain Rapids, of a sufficient height to flood the portion of the Ottawa, extending up to the foot of Lake Témiscamingue, to the level of that lake, for the purpose of permitting a continuous navigation from the head of the lake to the Mountain Rapids, which are 11 miles from the Canadian Pacific Railway at Mattawa, with which place connection could be had by either a branch line of railway or a highway road.

“2nd. To construct a dam at the foot of Lake Témiscamingue, of a sufficient height to raise and maintain the water of the lake at a height of 15 feet above its normal summer elevation, for the purpose of holding this water until such time as the water in the Ottawa has fallen to such an extent that difficulty is experienced in the driving or passing of timber, and the supply to the mills at Ottawa has become reduced, when sluice gates are to be opened in the dam, and the impounded waters let free to flush the river, or to increase the supply of the mills.

“3rd. To construct a dam across the Ottawa, immediately above the confluence of the Mattawa, of such a height as would raise the water in the river above it to the level of Lake Témiscamingue, and thus permit navigation to be brought almost immediately in connection with the facilities offered by the Canadian Pacific Railway.

“4th. A proposition by the Rev. Mons. Paradis, missionary priest at Lake Témiscamingue, to lower Lake Témiscamingue $21\frac{1}{2}$ feet, and to build a dam at the Maple Rapid, seven miles above Mattawa, of such a height as would make still-water navigation to the head of Lake Témiscamingue.”

With reference to projects 1 and 2, I may here state, that under date 16th February, 1882, and 12th April, 1883, I submitted letters, which were published in the annual report of the Department for 1883, and I have attached hereto copies of the same, they having connection with the subject under consideration.

Returning to the report prepared by Mr. Guerin, it will be seen that he describes the Ottawa, from the Mattawa, upwards, to the head of Lake Témiscamingue, and the Rivière Blanche, one of the three rivers which empty into the lake, for a distance of

twenty-four miles, stating that it is now navigable for that distance when at its lowest stage of water, and thirty miles when at its highest stage. The second river, the Quinze, which is said to be the Ottawa, is a large stream, but broken by many falls and chutes, and therefore unnavigable. The third river is the Otter, a comparatively small stream.

High water in Lake Témiscamingue occurs during the latter part of May, when it commences to fall, reaching the period of low water in October, and then almost immediately begins to rise. The average distance between high and low water is $12\frac{1}{2}$ feet, but this difference has reached 19 feet in years when extraordinary freshets occurred. Mr. Guerin has entered fully into the question of converting Lake Témiscamingue into a reservoir, as per project No. 2, and concludes his enquiry by stating that it would be "futile to attempt to supply water power to the Chaudière (Ottawa) mills, or to afford sufficient water to drive logs in the river (Ottawa) from a storage of 15 feet in Lake Témiscamingue;" and "that there must be a larger storage than 15 feet to accomplish the end in view, but then the result would be to drown a quantity of good land at the head of the lake."

This confirms the statement expressed in my letter of the 16th February, 1882, that the discharge of water impounded in the lake, during a low stage in the Ottawa, would not be of benefit to the mills at the Chaudière.

Supposing this project to be practicable, the cost of the dam and works for regulating the supply and discharge of water, &c., is placed at \$1,045,500.

With reference to the project No. 1, of building a dam at the Mountain Rapids of a height sufficient to obliterate the Long Sault, which is $7\frac{1}{4}$ miles in length, and has a fall of $53\frac{1}{2}$ feet, and thus make a continuous stretch of navigation to the head of Lake Témiscamingue, Mr. Guerin states that the depth of water at the foot of the lake should be increased to 8 feet, not only for the purposes of navigation, but to reduce the strong current which exists, and he proposes to build the dam required to such a height as would raise permanently the level of the lake $2\frac{1}{2}$ feet. By the adoption of this project 94 miles of still-water navigation would be created, or adding the distance up which the Rivière Blanche could be utilized, viz., 30 miles, a total of 124 miles.

The cost of the dam, timber slides, &c., required to carry out this scheme is placed at \$2,100,000.

The project, No. 4, to lower the level of Lake Témiscamingue $21\frac{1}{2}$ feet, and to build a dam at the head of the Mountain instead of the Maple Rapids, of a height sufficient to flood the Long Sault, differs from project No. 1, in that a large amount of dredging or excavation would have to be done at the outlet of Lake Témiscamingue, or, what is the same thing, the head of the Long Sault, in addition to the construction of a dam, timber slides, &c.

The channel at the foot of Lake Témiscamingue is split into two by an island, the eastern part being the main channel, through which water always flows, whilst the western part only serves during the time of freshets, when the lake has risen, to some extent, and remains above its normal height. Mr. Guerin proposes to only deepen the eastern channel, but it will be impossible to do this, by reason of the great velocity and strength of the current, which would prevent the placing or working of dredging or excavating plant and machinery; and besides this, the question arises: what is to be done with the material to be removed over a length of $1\frac{1}{4}$ miles to obtain the depth of 24 feet required to carry out this project—materials amounting to 960,000 cubic yards.

So far as could be ascertained, these materials are boulders of all sizes, from among which all the smaller stones and gravel have been washed by the great force of the current, and I have learned from Mr. Guerin that this deposit of boulders may over-lie solid rock.

By the adoption of this project a large quantity of land around the upper part of Lake Témiscamingue—not less than 15,000 acres in extent, now submerged—would become available for use and settlement, and the low lands at the head of the lake,

which are now non-cultivable, by reason of their great humidity, would be rendered valueless, and the navigation of the Rivière Blanche would be destroyed.

The cost of the dam, dredging, excavation, slide, &c., required to carry out this project, is \$2,327,500.

A modification of this project is to build the dam at Maple Rapids, which are 4 miles from Mattawa, and thus bring navigation to within that distance of the Canadian Pacific Railway. The cost of so doing is placed at \$2,656,500.

It has been previously stated that this project was proposed by the Rev. Mons. Aradis, and I have attached hereto his *memoire* on the subject.

Mr. Guerin has evidently not considered project No. 3 in its entirety, for, as submitted, it was suggested that the dam across the Ottawa, above the confluence of the Mattawa, should be of such height as would raise the water in the river above it to the level of Lake Témiscamingue. Mr. Guerin only discusses the construction of a dam of such proportions as to drown the Mountain Rapids, and only create a continuous navigation to the foot of the Long Sault, a distance of 32 $\frac{1}{4}$ miles, and the difficulties and obstructions caused by the Long Sault would still remain.

The works suggested are estimated to cost \$2,594,000, but the advantages to be derived from their construction would be practically *nil*.

Mr. Guerin has discussed the question of the materials with which the dams in connection with the projects submitted should be constructed, and has rejected the use of wood, on account of its unsuitableness, and recommended that stone only be used; and his calculations of the strength, dimensions and stability of the structures proposed were based on the employment of stone only. With this recommendation I am completely in accord, and the estimates of cost which have been stated include the construction of masonry dams, which, though involving the largest present outlay, would be found to be the safest, most satisfactory and cheapest in the end, for once built the object attained would be permanent and lasting, and the cost of maintenance and repairs be reduced to a minimum.

The costs of the different projects have been carefully considered, and in all cases the dam of largest dimensions, that is, having a factor of 4 for stability, has been taken for the purposes of the estimates. The total amounts may appear to be large, perhaps excessive, in comparison with the results to be obtained, but it must be borne in mind that the construction of a dam at any of the points suggested would be a work of magnitude, the counterpart of which perhaps does not exist. The high dams referred to by Mr. Guerin are, properly, dams which have been built across dry valleys for the purpose of collecting and impounding water, and their construction was to a certain extent an easy matter, and they were built in a climate where winter may be said to be unknown.

A dam—properly a weir—for the word dam has become perverted from its true meaning—a weir being a structure across a river, or stream over the top or crest of which the water constantly flows; such a structure across the Ottawa would have to be built in the bed of a river, subject to the long frosts of winter, the heavy freshets of spring, the frequent fluctuations in its level during the summer, a rapid current of water, and the fact that the working season for getting in foundations is limited to a couple of months, and it would therefore be a tedious and expensive work to construct; and in view of these facts, it became necessary to adopt a large price in preparing the estimates of cost.

Project No. 1, viz., to construct a dam at the Mountain Rapids, thus obliterating the Long Sault, and creating a stretch of navigable water 130 miles in extent, is submitted as being the most feasible and most productive of benefit.

I have the honor to be, Sir,

Your obedient servant,

HENRY F. PERLEY,

Chief Engineer.

Gobeil, Esq.,

Secretary Department Public Works.

OTTAWA, 12th February, 1885.

SIR,—In accordance with your instructions of the 4th of June last, directing me to examine and report on the different schemes submitted to the Department in reference to certain improvements proposed to be made at the rapids of the Upper Ottawa River and Lake Témiscamingue, I proceeded to Mattawan, and arrived there on the 6th of the same month. Here I procured all the necessary equipment, and started for Lake Témiscamingue on the 10th.

Having arrived at the foot of this lake I divided the party into two. One was detailed to make a survey of the Ottawa River, from this point to the mouth of the Mattawan River, or the village of Mattawan. The other, with myself, proceeded to the head of the lake, to make the necessary examination in this latter locality.

A small steamer, owned by Mr. Latour, a lumber merchant, navigates this lake and is employed chiefly in towing rafts. This steamer proved very useful to our party whenever it became necessary to ascend or descend the lake; for, owing to the high winds which often occur here, it would be quite unsafe for small boats, heavily laden as ours were, to attempt such an undertaking.

The River from Mattawan to Lake Témiscamingue.—Proceeding from Mattawan to Lake Témiscamingue, the banks of the river are nearly everywhere rocky and precipitous, rising, in some instances, to a height of 400 feet. The species of rock is gneiss and syenite, except at the head of the lake, where there is a ridge of very fine limestone. The navigation is interrupted during the first 14 miles of this journey by four rapids, which completely bar any traffic that may arise from a settlement of this district. Those rapids have a total fall at low water of 28 feet. They are named, the Demicharge, the Caves, the Érables, and the Mountain Rapids.

Immediately above the Mountain Rapids commences a stretch of excellent navigation for about 19 miles, called the Seven League Lake, which varies in width from 1,000 to 1,600 feet. Although its width is not much greater than that of the river in many places, yet it is not unreasonable to call it a lake, for its total fall from head to foot is only 6 inches.

It was sounded in several places, the depth obtained being generally about 6 feet. In one place it was 397; but in no place was it found to be less than 30 feet deep. A longitudinal section was obtained in the vicinity of the Mountain Rapids from which it can be seen that this lake is the result of the obstacle or natural dam at its foot called the Mountain Rapids, which backs up the water and keeps it as still as a mill pond.

At the head of the Seven League Lake commences another formidable barrier to navigation, called the Long Sault, which is rapid, continuous and violent, for a distance of $7\frac{1}{2}$ miles, and has a total fall, at low water, of $53\frac{1}{2}$ feet.

At the head of this last-mentioned rapid Lake Témiscamingue commences. With the exception of a few small patches, its shores present the same features—bold and precipitous, as those which have been already referred to, as representing the characteristics of the river banks all along from Mattawan. This lake is of an irregular shape. It has a length of about 68 miles and an area of about 125.25 square miles. During the journey up this lake it was observable that the streams which flow into it are all violent rapids, a fact which may be inferred from the character of its shores. They would be valuable as a water-power to settlers who may colonize this district.

At the head of the lake the features of the shore become entirely changed. The rocky, precipitous character fades away. Three rivers flow into it at its head. The being named in the order of their size are, the Quinze, the Blanche and the Ottawa River.

The Quinze.—The Quinze, which is said to be none other than the Ottawa River, is a large stream of water, and, as its name indicates, has fifteen rapids.

The Blanche.—The Blanche is a stream so still and apparently so devoid of motion that it appears at first sight to be an arm of the lake. An hydrographic examination was made of it for a distance of about 5 miles from its mouth.

depth varied from 20 feet to 16 feet, and its width from 400 feet to 320 feet. Its mean velocity did not exceed one-tenth of a mile per hour. Its discharge was then 31 cubic feet per second. At low water it would be only 122 cubic feet per second.

I ascended this river in a steamer for a distance of about 24 miles, as computed by logging the steamer, and found at this distance a depth of 8 feet and a width of about 220 feet. Here our further progress was barred by a waterfall of about two feet, but above this fall, according to information supplied by an Indian, there was deep and smooth water for a distance of 6 or 7 miles. At the time this excursion was made the level of the lake was about 5 feet above the level of low water, and about 7 feet below its level at high water, so that we may conclude this river is navigable for 24 miles at its lowest stage for vessels drawing $2\frac{1}{2}$ to 3 feet water, and at its high stage it is navigable for 30 miles.

The Otter River.—The Otter River resembles the Blanche, near its mouth, though not having half its capacity. It was examined for a distance of about $1\frac{1}{2}$ miles, its greatest depth being 10 feet, its velocity 0.26 feet per second, and its discharge 229 cubic feet per second.

From these facts it can be seen that both the Blanche and Otter are insignificant rivers, when estimated by the quantity of water they convey; although the former affords a good highway for 24 miles of its length.

Character of the Land.—In consequence of the high, precipitous banks along the Ottawa River and the sides of the lake, there were no means of judging the character of the adjacent land until the head of the lake was reached. Here the Blanche and Otter Rivers afford an opportunity of penetrating into the interior and becoming acquainted with the nature of the soil. The land in the vicinity of those rivers is undoubtedly good. Of course, I am unable to estimate the quantity there is of good land in this region; but all that was traversed in the excursion up the Blanche and Otter Rivers is of a superior quality.

Soundings of Lake Témiscamingue.—At the head of the lake, from Chief's Island to the northern end, soundings were taken on several lines, as you will see on referring to the accompanying plan. The sounding line was 120 feet long, and on continuing the soundings south of Chief's Island it soon fails to reach the bottom. I sent to the Department for a line 400 feet in length, but this did not arrive until the party were operating on Seven League Lake. However, all the data necessary for the accomplishment of the object in view was obtained by the means at hand, before the party left Lake Témiscamingue.

High and Low Water of Lake Témiscamingue.—The time of high water on this lake occurs during the latter part of the month of May. The time of low water occurs late in the month of October. At the time the present examination was made (July) the lake seemed to be falling at the rate of about two-tenths of a foot per day. To obtain the elevation of high water or low water, reference had to be made for information to persons living at the place. Mr. Latour, at his mill, and Mr. Piché, at his farm pointed out certain marks by which the levels of high and low water were obtained. The information afforded by both these gentlemen agreed pretty well as to high water; but they disagreed by over 18 inches on the level of low water. This latter was obtained, however, pretty accurately, in the month of October. Combining all this information, it appears that the difference of level between ordinary high and low water of Lake Témiscamingue is about $12\frac{1}{2}$ feet; but in some years the spring freshets raise the level of the lake far above its ordinary high water level, thus causing the difference of level between high and low water to be upwards of 19 feet.

Fall of Long Sault.—A survey of the Ottawa River was made from the foot of Lake Témiscamingue to Mattawan, and from this it appears that the fall from Lake Témiscamingue to Seven League Lake, or the fall of the Long Sault Rapids, in time of low water, is $53\frac{1}{2}$ feet, and at high water it is only 49 feet. This seems anomalous, and requires explanation.

On referring to the plan herewith submitted, it can be seen that at the head of the Long Sault the outlet from Lake Témiscamingue is divided by an island into two

channels, the level of the bottom of the eastern channel being about 7 feet below that of the bottom of the western channel, which becomes dry at low water.

Hence it follows that during high water the two channels are aiding to discharge their contents from Lake Témiscamingue to be conveyed by the Long Sault into Seven League Lake. The outlet from Seven League Lake is at the Mountain Rapids, and the capacity of the channel here is less than the united capacities of the two channels which constitute the outlet from Lake Témiscamingue; hence the latter channels, during high water, pour a greater quantity into Seven League Lake than the outlet of the latter is able to discharge, thus causing Seven League Lake to rise while Lake Témiscamingue falls; so that the difference of level must be least at high water.

Again, when the level of Lake Témiscamingue falls so low as to render the western channel dry, then the outlet from Lake Témiscamingue will be confined to the eastern channel, which is nearly of the same dimensions as the outlet of Seven League Lake; but as the area of the latter lake is many times less than that of Lake Témiscamingue, its level must fall faster, and the difference of level must be greater at low water than at any other time.

Discharge of the Ottawa River.—The discharge from Seven League Lake was measured at the current immediately above the Mountain Rapid on the 21st of August last. It was then 16,383 cubic feet per second, the elevation of the lake being 135.09 feet above datum on that day. From this it follows that during high water the discharge will be 25,100 cubic feet per second, and during low water will be 14,800 cubic feet per second. This is the rate of discharge at which the water flows through the Ottawa River as it leaves Seven League Lake.

Dams.—As each of the projects submitted to the Department contemplates the erection of a dam across the River Ottawa, it becomes necessary to make a selection of the most suitable material to be used in the erection of such dam, and in doing this we are confined to clay, wood or stone. A clay or earthen dam cannot be recommended in the present case, for the reason that it cannot be procured in sufficient quantity in any of the localities where the dams are proposed to be built—the banks of the river being composed of rock and boulders. Even if such material could be procured, it would not be advisable to use it in the construction of a dam of such magnitude as either of those proposed to be built in connection with any of the schemes contemplated. Its cohesion is uncertain. It may last for several years and then break up, without giving any warning whatever. A mole may bore its way through it, and thus enable the water to penetrate and destroy the dam, thus causing a flood which will carry away every structure it meets within its course.

A wooden dam is liable to decay. It is lighter than water, and it must, therefore, be kept in its place by pinning it to the bottom, or loading it with stone. Every cubic foot of pine timber in a dam has a force of thirty pounds, over and above its own weight, lifting it upwards. To resist this destructive force in a wooden dam there is nothing but the friction of the pins which are intended to fasten it to the bottom, or the weight of stone with which it may be loaded. The first of these forces is quite unreliable, for in many instances the holes which are drilled for the pins at the bottom are so large that no friction exists there. The other contrivance is equally unreliable, for the stone thrown into the dam will occupy a space in the dam about 25 per cent. greater than its own cubical contents, so that the specific gravity of that portion of the dam which is occupied by the stone will not be materially greater than that of the water. Moreover, the quantity of stone is so much less than that of the timber that its utility as a means of increasing the stability of the dam is by no means an important factor.

It follows, from these facts, that there can be no reliable calculation made as to the stability of a wooden dam, for there is no reliable data on which to base a calculation. It is liable to break up at any time, and thus cause destruction to life and property; for the material composing it, being borne along by the flood, will destroy every structure in its way. Wherefore, wood cannot be recommended as a suitable

material to be used in the construction of so large a dam as any of those proposed for the schemes in connection with Lake Témiscamingue.

It seems plain, from the statement of the case, that the dam in each of these schemes should be of the most solid and permanent character, with all possible safeguards against accident from any cause. The stone masonry, laid in cement, comes to the front as being the only reliable material to be used in the present case.

Masonry Dams.—In discussing the efficiency of a masonry dam, there is no difficulty in arriving at a conclusion with respect to its stability, for a masonry dam can be built of any degree of strength. However, it is not, properly speaking, a dam that is proposed to be built in any of the present cases—it is a weir.

A dam simply impounds a quantity of water, and has to resist only its hydrostatic pressure. A weir backs up water in motion, and has to resist both the hydrostatic and hydraulic pressure. As the term "dam" is used in both senses by the parties interested in the present projects, I have adopted that term on the plans accompanying this report. The question in each of the projects submitted is now reduced to this: It is required to build a weir of masonry of a given height, whose cost will be a minimum while its strength will be a maximum.

As in the construction of any important work it is always desirable to study the construction of similar works already in existence, whose efficiency has withstood the test of time as well as that of science, so in the present case this course has been pursued.

It appears that two of the most important dams in existence are in France—important alike for their size, symmetry and stability. France has been the cradle of hydraulic science, and it appears that these two dams have been designed with all the ability the French engineers are noted for. One of these dams is on the River Turens, and is 50 metres (164 feet) high. The other is on the River Bau, and is 42 metres (137·79 feet) high. The study of these two dams has been of much service in the present enquiry.

The outer face of each of these dams is a logarithmic curve, which it was considered needless to adopt in the present case, for the reason that it would not diminish the amount of masonry to any great extent, this being the object of the curve, while the workmanship in cutting the stones to suit the curve would materially increase the cost. A straight batter is therefore adopted for the outer face of each of the dams whose plan is submitted with this report.

Width of Dam on Top.—In a country where there is nothing to be feared from the force exerted by ice against a dam, its width on top is an arbitrary quantity, and may be taken at pleasure, so long as the upper course is considered capable of resisting the scour of the head of water flowing over the weir.

In the present case it is different, for the upper course may have to resist the force of a field of moving ice several hundred feet in extent. To meet the difficulty that may arise in such a case, a width on top of 20 feet is adopted for each of the dams referred to in this report. The Turens dam is 18·75 feet wide on top.

Stability.—Considering the number of dams we read of from time to time as having been broken up, and the resulting flood, causing immense destruction to life and property, the question of stability has commanded particular attention in the present case.

In the construction of dams I am aware that it has been the practice of some parties to design the dam with a power of resistance equal to twice the strain exerted by the impounded water. Well, if the water were still, such a modulus of stability would be sufficient in a masonry dam, for no extra strain can occur further than the hydrostatic pressure of the water; but in a weir, on such a river as the Ottawa, such a modulus of stability would be a dangerous experiment.

An engineer, in designing a bridge, uses always the number 4 as his factor of safety. There is no valid reason why this factor should be rejected in the case of a weir, for the latter is subjected to strains in many instances at least as great as those to which a bridge is liable.

In the plans herewith submitted the dams are designed with a modulus of 4. In most cases they are duplicated, having a modulus a fraction greater than 2—the amount of masonry in each case will be given, so as to understand the merits of both from a pecuniary point of view. The modulus of stability which is alluded to here has reference to the strain which tends to upset the dam. The horizontal thrust of the water, which tends to cause the courses of masonry to slide on one another, is a strain which has never been known to destroy a dam.

The part of the dam where this strain is exerted with the greatest force is at its base, and here there are projections in the present case which are sunk into the foundation. These will effectually counteract the effect of such a strain at the bottom of the dam.

In the dams whose designs are herewith submitted, the weight of any portion of one of them over the course of masonry below it is such as to be capable of resisting the horizontal thrust of the impounded water. The resistance which this weight opposes to any horizontal force will be further intensified if the courses are laid in a direction perpendicular to the line of batter, as shown in the section of the dam proposed to be built at the head of the Long Sault Rapids. By this means the resistance to sliding increases as the divergence of the line of batter from the vertical.

All the foregoing facts being premised, I now propose to discuss, in order, the several schemes submitted to the Department to manipulate the waters of Lake Témiscamingue and the Ottawa River, so as to make them subserve the interests contemplated:—

1st. Projects submitted for Examination.—It is proposed to build a dam at the foot of Lake Témiscamingue, of sufficient height to raise the water of the lake to a height of 15 feet above its ordinary high water level, for the purpose of holding the water until such times as the water in the Ottawa has fallen to such an extent that difficulty is experienced in driving or passing timber, and the supply to the Chaudière mills, at Ottawa, has been reduced, when sluice gates are to be opened in the dam and the impounded water let free, to flush the river and increase the supply to the mills.

On studying the documents supplied me on this subject, I find that you have already pointed out the uncertainty of the success of such a scheme—you have exposed the fact that the river and the several lakes between Lake Témiscamingue and Ottawa city will be so low at the period referred to that it will require a great quantity of the water which is stored to raise them to the necessary level to float the logs or produce any sensible effect at the Chaudière mills; that during this time, on its way down, evaporation and percolation are consuming their portions of the water intended for use, and that, certainly, a large quantity of it will never reach the Chaudière.

I fully endorse this view of the case, and, indeed, there is nothing further to be done on this subject by me than to compute the cost of the dam and examine the performance of its functions at Lake Témiscamingue.

Having selected the most suitable locality for building a dam, it has been designed so as to raise the level of the water 15 feet above ordinary high water level, and it will be seen, on referring to the accompanying plan, that all the sluices of the dam can admit of are placed in such positions as will enable them to discharge the greatest quantity.

There are nine pairs of sluices in the western channel, whose dimensions are 8 by 4 feet, the longer slide being horizontal. The tops of these sluices are on a level with ordinary high water. There are eight pairs of sluices in the eastern channel similar to the others, the centres of these latter being on a level with low water.

It has been already stated that the discharge of the river at low water is 14,000 cubic feet per second. The discharge at high water or its maximum discharge is 25,000 cubic feet per second. As the former is the minimum discharge, it is evident that this quantity is permanently supplied by the rivers flowing into the lake, assisted, perhaps, by subterranean contributions, and any discharge over and above this quantity must be due to the season's rain or snowfall. For instance, the discharge

25·100 cubic feet per second exceeds the minimum of 14·800 cubic feet per second by 10·300 cubic feet per second. This latter quantity must have been supplied by the previous rain or snowfall. It is crowded into the lake and raises its level generally 12½ feet, sometimes over 19 feet, above low water level.

In consequence of the narrowness of the outlet from the lake preventing the speedy escape of this accumulation of water, the season is generally consumed before it has passed off, when the river is then reduced to its legitimate proportions of 14·800 feet per second. On last autumn it did not remain in this latter state longer than a week, when it commenced to rise, although there did not seem to have been rain enough to warrant its rising.

It is stated that during a considerable time before and after the river reaches its minimum discharge the mill owners at the Chaudière, and the lumbermen generally, complain of a deficiency of water to propel their machinery and drive their logs. It is stated that at the time of high water, or maximum discharge, there is much more water supplied them than they require. To obviate the difficulty, the surplus water of the spring is to be stored as set forth by the scheme under discussion.

How the Impounded water is to be used.—As a supply of 25·100 cubic feet per second is a larger quantity than what is required, and a supply of 14·800 cubic feet per second causes a scarcity to the lumbermen and others, let the mean be taken, or $25·100 + 14·800$

—= 19·950 cubic feet per second, and let the minimum, or 14·800

2

cubic feet, be supplemented by such a quantity as will give a constant discharge of 19·950 cubic feet per second.

By this means the supply becomes constant and equalized throughout. This supplemental quantity will be $19·950 - 14·800 = 5·150$ cubic feet per second, and the quantity stored in the lake must be taxed to this amount, so that by this arrangement the level of the lake will be reduced at the rate of 0·127 feet per day.

The dam is 2·750 feet long, it follows that at the time of maximum discharge there will be a head of water on it of 1·87 feet, and at the time of low water, or minimum discharge, the head will be 1·30 feet. It will take only $6\frac{2}{10}$ days for the head to be reduced from the maximum to the minimum level, and in 10 days after this there will be no water passing over the dam, but the whole river will have to pass through the sluices (see Appendix). Furthermore, when this dam shall have been in existence the fluctuations in the level of the lake between ordinary high and low water cannot exceed 1 foot.

The rate at which the level of the lake is reduced will show that in the latter part of September all the stored water will be gone, and the level of the lake will be a foot below its ordinary high water level.

At this stage of the lake there would be a head on the sluices in the western channel of $3\frac{1}{2}$ feet above their bases, and a head on the sluices in the eastern channel of 12 feet above their centres.

There would then be a discharge through the sluices of 15·014 cubic feet per second, so that in the latter part of September and throughout the remainder of the year the supply through those sluices would be only what it is now at extreme low water.

It may be objected here that the sluices are not large enough, and that if they were of larger dimensions they could afford a greater supply, as the level of the lake is still 12 feet above low water.

To satisfy any doubt in this respect, let us suppose the bottom of each sluice in the eastern channel to remain at the same level as before, as it cannot with economy be made lower, and let the height reach the level of the bases of those in the western channel, then those sluices will be 8 by $10\frac{1}{2}$ feet instead of 8 by 4 feet.

They cannot be increased in width, for their united widths already occupy the whole width of the channel. To have them higher would be useless, for the level of the water will soon descend below the top of the sluice, and then the extra height will be of no avail. With these dimensions the level of the lake in the middle of

October will have descended so low as to render the entire discharge through the sluices equal to the discharge of the river at extreme low water.

In adopting a scheme of this kind there must be a means provided by which to approach the sluices, so as to operate them, for the water flowing over the dam will prevent an approach to them in the ordinary way. To meet this difficulty, a plan of a bridge 500 feet in length is shown on the western end of the dam, so as to afford a place for the parties in charge to work the sluices before the water falls below the crest of the dam.

There must be also two or more slides built in connection with this dam, in order to be able to pass timber at the different stages of the level of Lake Témiscamingue.

From the foregoing facts, it appears obvious that it is futile to attempt to supply water power to the Chaudière mills, or to afford sufficient water to drive logs in the river from a storage of 15 feet above high water in Lake Témiscamingue.

There must be a larger storage than 15 feet to accomplish the end in view; but then the result would be to drown a quantity of good land at the head of the lake.

1st. Cost of this Project.—This project will cost the sum of \$1,045,500.

Before dismissing this subject, it is worthy of remark that it appears from the head flowing over the Carillon dam at low water, the discharge of the Ottawa river at low water is increased 45 per cent. by the lateral streams flowing into it between Lake Témiscamingue and Carillon. It would, therefore, seem that the suggestion contained in the document of yours, referred to at the commencement of this report in relation to the storage of water in these lateral rivers, would seem to be a more feasible mode of supplying the necessary amount to the Chaudière mills and the lumbermen to propel their logs than the costly one of damming the Témiscamingue and it appears to me that it would be well to devote some attention to the examination of such a scheme.

2nd. Dam at the Mountain Rapids.—The next scheme is to build a dam at the Mountain Rapids, of sufficient height to flood the Long Sault Rapids, and render the navigable, so as to obtain a continuous navigation from the head of Lake Témiscamingue to the Mountain Rapids, within 14 miles of the Canadian Pacific Railway at Mattawan.

It is claimed for this scheme that besides obtaining the increased water communication, it will also materially assist the lumber merchants in facilitating the descent of timber through the Long Sault, which, at present, is so great an impediment to the movement of logs.

On referring to the plan herewith submitted, you will perceive by the section which was taken of the channel at the outlet of Lake Témiscamingue, that the mean depth of the water there is only $5\frac{1}{2}$ feet at low water, the bottom consisting of boulders of large size. This being coupled with the fact that the velocity through this gorge, even after building the dam, would be over 6 miles per hour, we must conclude that its navigation would be dangerous for vessels drawing over 3 feet of water.

On these grounds I have concluded to increase the mean depth to 8 feet, giving such a height to the dam as will raise the level of Lake Témiscamingue 11 feet above its ordinary low water level. Even with this depth there will be a current of 4 miles an hour at Isle à la Tête, the outlet of the lake.

There are two designs given for the construction of this dam—one having 4 as its modulus of stability, the other having 2.29 as its modulus.

This scheme will give a continuous navigation from the Mountain Rapids to the head of Lake Témiscamingue and 24 miles further through the River Blanche, 118 miles in the total distance. It will, moreover, facilitate the descent of timber by obliterating the Long Sault Rapids. Cost, \$2,067,700.

3rd. Lowering Lake Témiscamingue.—The next scheme proposes to lower the level of Lake Témiscamingue $21\frac{1}{2}$ feet, and having done this, to build a dam at the head of the Mountain Rapids of sufficient height to flood the Long Sault Rapids, and thus obtain continuous navigation from the head of Lake Témiscamingue to the foot of the Seven League Lake, which is within 14 miles of the Pacific Railway, at Mattawan, as in the former case.

It is claimed, for this scheme, that besides obtaining those advantages for the lumber merchants which are stated in the last case, it will also redeem a large quantity of good land, which is now submerged, below the head waters of Lake Témiscamingue.

As in the former case, so in this—it becomes necessary to obtain a mean depth of 8 feet of water at the outlet of Lake Témiscamingue for navigation purposes. To accomplish this, the dam is designed so as to maintain the level of the lake at the same elevation it will have when lowered $21\frac{1}{2}$ feet; but, at the same time, the excavation is made at the outlet to a depth of 24 feet. This will give a depth of 8 feet for navigation.

When this depth is obtained through the eastern channel, the velocity through this channel will be 4 miles an hour if the western channel is left as it is, but if the excavation is continued through the western channel until it joins the eastern, south of the island, the velocity will be reduced to 2 miles an hour.

In the former case the necessary excavation will amount to 665,000 cubic yards. In the latter case it will amount to 959,000 cubic yards. Here the question arises whether it would be advisable to go to the expense of 304,000 cubic yards of excavation in order to reduce the velocity of the current from 4 miles to 2 miles an hour. In consequence of the small length of current, I am of opinion it would be better to postpone the additional excavation.

The banks of the river, all along from Mattawan to the head of the Long Sault, are composed of rock, which consists of gneiss and syenite, or a mixture of both. On the shore everywhere it shows itself in deep boulders, varying in size from 1 foot to 8 feet in diameter. Such is the material that may be expected to be excavated at the head of Long Sault.

Land Redeemed from the Lake.—In accordance with the soundings obtained at the head of the lake, it appears that when this project shall have been performed an area of 15,000 acres now submerged will appear above the level of high water. I have no doubt a much larger area than this will be redeemed; but nothing less than a contour survey of the head of the lake, taken at the level of high water, can ascertain the actual quantity.

It was impossible for me to devote the necessary time to this subject during last year. The quantity stated here is that which is obtained from the soundings. High water reaches into the bush, where it would be impossible to determine its limits without contouring.

Result to River Blanche.—It has been already stated that the soundings of the River Blanche showed a depth of 20 feet near its mouth, while at a distance of 24 miles up the river it was 8 feet deep. This would give a slope to the bottom of 6 inches to a mile. Moreover, the width of the river near its lower end is 400 feet; its level was 5 feet above low water at the time of its examination, and its discharge was 531 cubic feet per second.

From this data it follows that when the level of the lake shall have been lowered $21\frac{1}{2}$ feet, the depth of the River Blanche at low water will be only 6 inches, so that its facilities for navigation will then be destroyed.

This scheme will give a continuous navigation from Mountain Rapids to the head of Lake Témiscamingue, a distance of 94 miles.

It will facilitate the operations of lumbermen, by obliterating the Long Sault Rapids.

It will redeem over 15,000 acres which are now submerged by the waters of Lake Témiscamingue.

If the dam selected for this scheme has a modulus of 4, it will cost \$2,327,525.

If the dam has a modulus of 2.07, it will cost \$2,202,100. The dimensions of this latter dam are 18 feet on top, 22 feet at bottom, and 36.47 feet high. This design does not appear in the accompanying plan. That which does appear is copied from a segment of the Turens dam.

4th. Erables Rapids.—This scheme contemplates the lowering of Lake Témiscamingue, as in the former case, and building a dam at Erables Rapids of a height sufficient to flood the Long Sault.

All that has been stated respecting the foregoing scheme is applicable also to this, except that it will bring navigation $4\frac{1}{2}$ miles nearer to the railway at Mattawan than the previous scheme does.—Cost, \$2,656,525.

5th. *Mattawan*.—It is proposed by this scheme to build a dam near the confluence of the Ottawa and Mattawan Rivers, of such a height as to flood the Mountain Rapids, and thus acquire a continuous navigation from Mattawan to the foot of the Long Sault Rapids, a distance of $32\frac{3}{4}$ miles. Here the navigation is broken by the Long Sault Rapids, whose length is $7\frac{1}{4}$ miles.

In order to render the Mountain Rapids navigable at low water, this dam must be of such a height as to raise the level of Seven League Lake $2\frac{1}{2}$ feet.

You will see by the accompanying plan that there are two designs submitted for this dam—one having 4 for its modulus of stability; the other having 2·17 for its modulus. The former will cost, with a slide 450 feet long, the sum of \$2,594,000.

The latter, with a similar slide, will cost \$2,139,380. It will bring navigation to a point within $1\frac{1}{2}$ miles of the Canadian Pacific Railway at Mattawan.

It will assist the lumbermen in conveying timber over the several rapids intervening between Seven League Lake and Mattawan.

It will afford a continuous navigation from Mattawan to the foot of the Long Sault Rapids, a distance of about $32\frac{3}{4}$ miles.

Respectfully submitted,

THOS. GUERIN,

Engineer Department Public Works.

HENRY F. PERLEY, Esq.,

Chief Engineer of Public Works.

P.S.—I herewith return the following documents, which are referred to in your letter of instructions:—

1st. Report by Henry F. Perley, Chief Engineer, on the effect of a dam at Mountain Rapids.

2nd. Report by Henry F. Perley, on the effect of a dam at Lake Témiscamingue.

3rd. Newspaper clippings.

4th. Report from the Rev. Father Paradis.

5th. Plan by Sir William Logan.

T. G.

APPENDIX.

DAM AT THE HEAD OF LONG SAULT.

To find the time the level of the lake will require to fall from high to low water level, after the dam shall have been built:—

The dam is 2·750 feet long. The head of water on it at the period of high water will be 1·87 feet. The head at low water will be 1·30 feet per formula for weirs.

The area of the lake is 125·25 square miles.

Let the line $m o$ denote the crest of the dam.

$n s$. The level of high water.

$r v$. The level of low water.

a = Area of lake.

l = Length of dam.

h = Height $m n$.

x = Any distance $c d$ below $n s$.

t = Time the lake takes to fall the distance x .

Then the discharge over the dam at the level of d will be $3·55 l (h-x)^{\frac{3}{2}}$, and in the time $d t$ this will amount to $3·55 l (h-x)^{\frac{3}{2}} d t$. This must be the same as

$a dx$ and hence $dt = \frac{a dx}{3.55 l} (h x)^{\frac{3}{2}}$ —integrate—and we have $t = \frac{a}{3.55 l} \int \frac{dx}{(h-x)^{\frac{3}{2}}} =$
 $\frac{a}{3.55} l \times \frac{2}{h-x}^{\frac{1}{2}}.$

When $n s$ falls to $x v$ then $x = 0.57$, and we shall then have $t = 0.000157 a = 6\frac{3}{10}$ days.

Ref. No. 21,274.

UPPER OTTAWA IMPROVEMENT.

CHIEF ENGINEER'S OFFICE,

OTTAWA, 16th February, 1882.

SIR,—I beg leave to submit the following, relative to certain works asked for on the Upper Ottawa, with a view to its improvement, and in the interest of the lumber trade of the Ottawa valley.

The works asked for are for the benefit of two different and distinct objects—

1st. To increase the length of navigable waters above the confluence of the Mattawa, by placing a dam at the head of the Mountain Rapids, and thus to obliterate the Long Sault, and create comparatively still water extending to the head of Lake Témiscamingue, a distance of say ninety miles, and for some miles as well up the Rivière Blanche, thus bringing navigation by steamers to a point within twelve miles of the Canadian Pacific Railway at Mattawa.

2nd. To place a dam at the foot of Lake Témiscamingue for the purpose of raising the water in the lake to a certain height (to be hereafter determined), above its normal level, with the object of holding such water until the occurrence of the period when that in the Ottawa, at any point in its course to the Chaudière Falls, has fallen so low as to impede or prevent the running of timber and logs, and then, by the raising of gates or opening of sluices, to permit the water, or a portion of it, so penned up, to pass into the river, and thus to flush the logs and timber down the stream.

It will thus be seen that these proposals, so far as the objects for which they are designed are concerned, are antagonistic to each other, and that both have in view the improvement of the river (*a*) for the benefit of those directly interested in the maintenance of the lumber trade, and (*b*) those who desire the development of the country now beyond the reach of the ordinary modes of conveyance, &c., and at the same time to benefit the lumber trade by the facilities thus to be provided.

Above the mouth of the Mattawa it may be said that the Ottawa can only be traversed during the open season by canoe, involving many portages. About five miles above the Mattawa occur the Portage de la Cave and the Portage de la Chaudière, overcoming the rapids bearing these names, which have an united fall of $11\frac{3}{4}$ feet. From the head of the Chaudière Rapid to the Rapids aux Erables, which falls 13 feet, is four miles, and at a further distance of four miles, or thirteen from Mattawa, is the Mountain Rapids, which have a fall of 5 feet 5 inches, and it is at their head that it is proposed to construct a dam for navigation purposes.

Between the Mountain Rapids and the foot of the Long Sault lies Seven League Lake, which is merely a portion of the river, possessing a gentle current flowing between bluff and rocky shores.

The Long Sault is six miles in length, and consists of eleven falls and rapids, having an united fall of 48 feet, flowing through a contracted and crooked channel. From its foot to about a mile below Pemican Creek (a distance of twelve miles) Lake Témiscamingue is but a wider portion of the Ottawa; but from the point last named to its head, a distance of say sixty miles, it possesses all the characteristics of a lake, widening at its upper part to five miles, and receiving on its northern side and about midway of its length the waters of Kippewa, and at its head those of the Blanche

and the Quinze, at the mouths of which and around the shores of the lake is low lying land, producing marsh grass in considerable quantities.

The proposal to improve the river for the purposes of navigation was brought to the notice of the Hon. the Minister, and during the fall of 1880 an engineer was despatched to make an examination of the river between the Mountain Rapids and the Long Sault, but before accomplishing his work he was stricken down with illness, which ended in death, and, as reported to you under date 11th November, 1880 (No. 9208), the assistant engineer completed the survey; but not being acquainted with the instructions given to the late Mr. Lindsay, did not obtain the information it was necessary should be obtained to enable a full report to be made on the subject. The fall of the Long Sault was verified to 48 feet, as before stated, but I had not sufficient data to enable me to determine the height of the dam required to flood out these rapids, and create in their place a current not possessing a strength sufficient to impede or interrupt the navigation of the river, thus improved, by steamers or other craft. Neither was I furnished with any information relative to the nature of the country bordering the banks of the river or of the streams falling into it on either side, to permit me to judge whether serious damage might or might not occur, due to a permanent rise in this part of the river; for it must not be forgotten that besides this permanent rise, a further rise of from 15 to 18 feet takes place during the periods of freshets, which would perhaps flood portions of the country to a greater or less extent which are now entirely beyond the reach of any rise in the river. Again, provision would have to be made for the passage of timber over this dam, and possibly through the whole length of the Mountain Rapids, by the construction of a slide or slides, the magnitude of these works being dependent on whether the timber from the lake and Kippewa would come to the dam in cribs or in single pieces. Wanting all this information, and much more that I had not enumerated, I suggested that further examination should be made during the past year, but no action was taken thereon.

Last year, owing to the unusual drought which prevailed throughout Ontario and the western part of Quebec, the water fell abnormally low, so much so that there was not at many points sufficient to float logs and timber, some thousands of pieces of which "hung up" and could not be brought to the mills at Ottawa, or for transshipment to Quebec or elsewhere. This want of water was much felt at the mills at Ottawa, which, in consequence, only ran for half the usual time.

This want of water was the cause of those interested in the lumber trade to suggest the building of a dam at the foot of Lake Témiscamingue to raise it in height and maintain it at the new level, the water so impounded to be let off when, for want of water on the lower reaches of the Ottawa, it was found to be difficult, if not impossible, to "drive" timber, as the water thus discharged would sweep all before it (See No. 17612).

During the past summer a survey was made at the foot of Lake Témiscamingue to obtain information on which to base an estimate of the probable cost of the dam required, &c.

With respect to the preparation of the plans of the dam, or an estimate of its cost, I have to state that I have not done anything, and I must acknowledge that refrained from doing anything because the more I studied the problem to be solved the more I became aware that I did not possess all the data necessary for its solution. Thus, I desire to be assured that when the water to be retained in Lake Témiscamingue should be let off in quantities great or small, that its effects should be felt at the point where they are required—as, for instance, at a point on the river 20 miles below the dam, which is, say, 240 miles above Ottawa.

If the channel of the river was of one width and depth, and did not have its streams emptying into it, then we could fairly assume that the whole of the water minus loss by evaporation and infiltration, which passed through the dam, would find its way, with the increased height and velocity due to the quantity discharged into the channel, and do and perform the duties required of it. This state of things does not exist, for we know that the Ottawa is a river of varying breadths and

depths, broken by rapids and falls, and swelling into long stretches of placid water, and having many streams, large and small, emptying into it, and therefore much—possibly all—of the water, judged by those in charge at the dam to be sufficient for the purpose required, would be lost on its way down absorbed in the spreading reaches and lakes of the river, and in flowing up its lateral streams and branches.

Before anything is done in the construction of works, it is necessary that this question of the probable loss of water should be determined by an examination of the river from the Chaudière to Lake Témiscamingue, and of the streams and rivers emptying into it on either side, with the view of ascertaining, first, the general characteristics of the river along the length indicated; second, the points at which it is probable or possible the timber and logs will stick for want of water; and third, whether the streams above these points might not be dammed and their waters impounded and used as occasion might demand.

For these reasons, I do not offer any plan for carrying out the improvements herein described as necessary or required, nor estimates of their probable cost, for I feel that the questions left to my decision are such as to demand from me the utmost care and the exercise of all my knowledge and skill in their solution, and I know that I cannot, with the limited information at my command, undertake even to give an opinion as to the feasibility of either of the schemes proposed.

I have the honour to be, Sir,
Your obedient servant,

HENRY F. PERLEY,
Chief Engineer.

F. H. ENNIS, Esq.,
Secretary Department of Public Works.

Ref. No. 33644.

MEMORANDUM—UPPER OTTAWA RIVER.

CHIEF ENGINEER'S OFFICE,
DEPARTMENT OF PUBLIC WORKS,
OTTAWA, 12th April, 1883.

The projects for the improvement of the Ottawa above the confluence of the Mattawa River have been submitted to the Department, and preliminary examinations have been made and reports furnished.

These projects have different ends in view.

The first submitted to the Department was the construction of a dam at the Mountain Rapids, twelve miles above the mouth of the Mattawa, to a sufficient height to obliterate the Long Sault Rapids, which have a total fall of 49 feet, the object being to create still water navigation to the head of Lake Témiscamingue, a distance of ninety miles, and it is claimed that steamers can ply for some distance up the Rivière Blanche, emptying into the head of the lake.

The second proposal was the construction of a dam at the foot of Lake Témiscamingue, for the purpose of raising and maintaining the water in the lake at a height not greater than 15 feet above its normal surface level, until the water in the Ottawa had reached its summer stage, when the waters so impounded in the lake could be discharged into the river, for the double purpose of floating timber and maintaining a supply to the mills at the Chaudière Falls at Ottawa.

It may thus be seen that these two projects are antagonistic. If the dam were built at the Mountain Rapids for the purposes of navigation, then the river below, for milling and rafting purposes, would remain as it is at present, and no advantage would be derived by the mill owners at the Chaudière.

If the second proposal were carried out, then, as regards navigation, the river would remain as it now stands.

I am not prepared, for the want of information—information only to be obtained after a most thorough and careful examination of the river from the Mountain Rapids to Ottawa, the cost of which would not be less than \$5,000 (*See my letter of 16th February, 1882, No. 21274*)—to offer an opinion as to the feasibility of the scheme for making Lake Témiscamingue a reservoir for feeding the Ottawa during periods of low water; neither can I estimate the cost of a dam at the Mountain Rapids, and its probable effects on the country at the foot of Lake Témiscamingue, without further and extended examination. Either of these projects would involve an expenditure ranging from \$250,000 to \$500,000; for, as I believe that it would be unwise to construct the works of wood, or any perishable material, they should be built—if built at all—in a most solid and enduring manner so as to ensure their permanence and a minimum cost for annual repairs.

HENRY F. PERLEY,

Chief Engineer.

Ref. No. 57815.

REPORT on Lake Témiscamingue and the Long Sault Rapids, considered with reference to the plan of erecting a Dam on the Ottawa River between Témiscamingue and Mattawa, presented to the Hon. Sir Hector L. Langevin, C.B., K.C.M.G., Minister of Public Works, Ottawa, by C. A. M. Paradis, Priest, O.M.I., Missionary to the Indians of Lake Témiscamingue and Hudson Bay.

SIR,—In conformity with the promise I made you in the month of September last, I have the honour to transmit to you, to-day, a statement, as complete as possible of the information I have been able to obtain in relation to Lake Témiscamingue and those points on the Ottawa where the Government intend to carry out certain improvements in the interest of trade and settlement.

I am happy to present a report favourable to the plan I mentioned to you of deepening the upper rapids of the Long Sault, in order to lower the level of Lake Témiscamingue. This I hope to establish in the sequel of this paper.

I.—PLAN OF CONSTRUCTING A 48 FEET DAM AT MOUNTAIN RAPID (OTTAWA RIVER)

Present plan.—From the papers kindly exhibited to me at his office by the Deputy Minister of Public Works, it is proposed to unite Seven League Lake with Lake Témiscamingue, in order to create a vast reservoir, destined to regulate the supply of the Ottawa River.

This uniting of the two lakes, aforesaid, is to be effected by means of a dam of 40 or 49 feet, serving to obliterate the Long Sault Rapids, which, for a distance of miles, present an almost insurmountable obstacle between Témiscamingue and Seven League Lake.

The said dam would be constructed at the head of the rapids called the Mountain Rapid, which constitute the lower end of Seven League Lake, 11 miles from Mattawa.

II.—NEW PLAN, MORE SIMPLE AND MORE ADVANTAGEOUS.

1st. Lower the dam.

2nd. Bring it nearer to Mattawa.

With your leave I beg to suggest a new expedient, which seems to me more simple, and, in every respect, more advantageous.

I suggest to take off 16 feet from the height of the proposed dam, and to locate it at Maple Rapids.

III.—REASONS IN SUPPORT OF NEW PLAN.

Reasons for lowering the dam.—By lowering the height of the dam you secure the object in view (which I shall show hereafter), and, moreover, insure the following advantages:—

1st. Reduction of cost proportioned to diminution of work.

2nd. With less work, a more substantial dam can be erected.

3rd. In proportion as it is lowered, the body of water confined in the basin will exact less pressure on the masonry of the structure and less imperil its duration.

4th. If, perchance, any part of the banks were too low (which I do not, however, believe) to retain the freshets, a reduction of 16 feet in the level of the basin would diminish the evil or obviate it entirely.

5th. In the event of a canal being constructed, the number of locks would be reduced, and it would take less time to raise vessels from the lower to the upper basin and *vice versa*.

6th. The slide for rafts and other lumber would have less of a fall, would not require to be so long, and would be more easily kept in repair.

II.—REASONS FOR PREFERRING MAPLE RAPIDS TO MOUNTAIN RAPID FOR THE CONSTRUCTION OF THE DAM.

1st. The Mountain Rapid is 11 miles distant from Mattawa; Maple Rapid is only 7 miles distant. This adds 4 miles to the navigation of Lake Témiscamingue and brings it, so to speak, to Mattawa.

2nd. Between the Maples and the Mattawa there is only one rapid on the Ottawa River, that of the Cave, and if a canal were made there the navigation of the Témiscamingue would be continuous to Mattawa.

And in the event of the plan already proposed for the opening of a line of canals by the Mattawa River being carried out, Lake Témiscamingue would be placed in direct communication with Nipissing, the Georgian Bay and the great lakes. As the spirit of progress spreads day by day in our young country, would it be a matter of surprise, if in the near future, Lake Témiscamingue were to be connected with Lake Abitibi and, through the latter with Hudson Bay?

The missionaries who, year after year, skim these vast waterways in their frail bark canoes, cannot help thinking that the connecting of this great group of lakes (several of which are really smaller seas) by means of a skilfully-distributed system of canals, is anything but a matter of impossibility; and that the whole would constitute not only one of the characteristic beauties of our country, but an undeniable source of wealth and prosperity. This is not a place to give a description of this section of the country, but suffice it to say, by the way, that the wealth of every description which it contains is but little known. Now Témiscamingue is the natural outlet of all this region; it is, therefore, of the utmost importance to open communication between it and the rest of the Province, the entrance to which is, so to speak, only barred by a wretched rapid.

3rd. But setting aside, for the present, all speculations foreign to or only remotely connected with the project with which we are occupied, I maintain that nothing could be easier than to construct a branch of the railway from the Mattawa station to the head of the dam, a distance of about 7 miles, the ground being exceedingly favourable, by following the banks of the river, or by traversing a township already well settled.

4th. Even as regards the transport of material required for the construction of the dam, there will be an evident saving in cutting off 4 miles of difficult navigation or rough roads.

5th. The effect sought to be produced at the period of low water in the Ottawa by the creation of this basin would be felt still more sensibly by thus bringing the reservoir nearer to the lower reaches of the river.

6th. By extending the reservoir for a distance of 4 miles the consequent increase in the body of water might be considered as a compensation for the loss involved in my proposal of a reduction in height, should any objection be raised on that score.

7th. The topographical conditions of the Mountain Rapid are certainly most favourable to the construction of the dam; but in that respect the Maple Rapids are in no way behind the former, as you may see by examining the maps I have made of the two localities, viz. :—

1st. Channel, narrow—231 feet.

- 2nd. Channel, shallow— $2\frac{1}{2}$ fathoms. Shallower than Mountain Rapid, which is $5\frac{1}{2}$ fathoms.
- 3rd. Strata transversal, of solid rock, but easy to work (sandstone).
- 4th. Continuous, high, precipitous banks up to the mountain and beyond.
- 5th. Good freestone in abundance (sandstone).

IV.—POSSIBILITY OF CARRYING OUT THE NEW SCHEME.—MEANS OF ACCOMPLISHING IT.—LOWERING OF LAKE TÉMISCAMINGUE.

1. *Preliminary Remarks on Lake Témiscamingue.*—The Indian word “Témiscamingue” means “deep waters.” It is, in truth, a lake of incredible depth, for it averages over 100 feet, and in some places reaches the enormous depth of some thousands of feet. Its length, from the head of Long Sault to the mouth of the Blanche River, is 70 miles. The greatest width, which is near the head of the lake, is 9 or 10 miles.

It was long thought, but erroneously, that this lake was the source of the Ottawa River; yet if those who adopted that opinion had undertaken a little excursion into our wild country they would, to their surprise, have been enabled to ascend for several hundred miles further the course of the beautiful river, and to have found it equally grand and majestic beyond Témiscamingue as beneath the noble bluffs of the Capital.

In a word, Lake Témiscamingue is nothing more than a vast expansion of the River Ottawa. It is also the longest course of continuous navigation to be found throughout the whole course of the richest tributary of the St. Lawrence.

On the latter ground, what precious advantages for commerce and industry might be derived from the utilization of 70 miles of navigation through a country where all products abound, with vast tracts of land whose fertility is crowned by a beautiful climate; where thousands of settlers might establish themselves in comfort, and transform the uninhabited wilds into veritable granaries of plenty.

Now, the dam in question would, of a certainty, be the most effectual means of utilizing this navigable highway and of imparting to it its full development, by adding some 30 miles to its length, and it is just for the purpose of promoting that great end that I have undertaken to demonstrate the practicability of an expedient calculated to remove serious difficulties. Now, the expedient I propose is the lowering of Lake Témiscamingue. This lowering is not only possible, but also quite easy of execution.

By reason of its great depth, Lake Témiscamingue would not suffer any detriment from a reduction of say 20 feet in its level.

How to accomplish the lowering of the level of Lake Témiscamingue.—A glance at the several maps and comparative tables I have prepared will show that to secure a reduction of 21 feet 6 inches in the level of Lake Témiscamingue it will be necessary to remove the stony ridges which cause the three upper rapids of the Long Sault, namely:—

	Ft. In.
1st. The Head.....	7 3
2nd. L'Islet	4 9
3rd. Rapide Plat.....	9 6

Or a total of.....21 6

So much as to the level, or to reduce Lake Témiscamingue to the level of Le Remous du Diable.

Further excavation would, of course, be required to secure a channel of suitable depth. But I leave that point to be estimated by experts, pointing out, meantime that judging from the soundings faithfully stated in my tables, the dredging of a dozen feet additional would not be a great matter, since each rapid is separated from its neighbour by deep and extensive eddies.

These three rapids are located in *échelon* along a distance of about $1\frac{1}{2}$ miles. Evidently, for the reasons I have just given, it would not be necessary to dredge throughout the whole distance.

Moreover, the bed of the rapids, down to a great depth, consists merely of boulders, which are easily susceptible of removal.

1st Objection.—Certain narrow parts of Lake Témiscamingue, such as Presqu'Île and Opimikong, would be changed into rapids, if the level of the lake were lowered 20 feet; and in the attempt to remove one obstacle we should be creating another equally as great, or perhaps greater, by interrupting the splendid navigation of the lake itself.

Answer.—It is quite true that at Presqu'Île and Opimikong (but there alone), located respectively 1 mile and 12 miles from the head of the Long Sault, there would be a break in the line; but it will be seen, on examination, that these are but short bars, a few acres at most, with deep water immediately above and below them, and can easily be removed; for in this case also the bed consists only of boulders.

(See the "Comparative Table" and the "Chart of Soundings.")

2nd Objection.—Will not all this dredging involve an outlay far greater than that sought to be avoided by carrying out the levelling in this manner? And, in short, would it not be more economical to build a 49 feet dam?

Answer.—This objection I meet by two considerations derived from the advantages resulting from the building of a dam on the one part, and on the other showing the benefits the lake would receive directly from the lowering of the level, independently of the reservoir, the dam and all its consequences.

Now, in what precedes, I have, I think, sufficiently set forth all the reasons in support of the first part of my thesis, *i.e.*, that other things being equal, it is more expedient to lower the level of the dam, &c.

It now only remains for me to prove that the works I have suggested, at the head of the Long Sault, are calculated to produce immense benefits; and that even though neither the dam nor the reservoir were constructed, it would be necessary, in the interests of Lake Témiscamingue, to carry out those works.

V.—RESULTS OF THE LOWERING OF LAKE TÉMISCAMINGUE.

I. Besides the evident advantage of diminishing by 21 feet 6 inches the height of the dam, if placed at the Mountain Rapid, and by 16 feet if placed at the Maples, the lowering of the lake would produce results still more valuable as regards the lake itself.

In calling attention to Lake Témiscamingue, let it not be fancied that I am speaking of an insignificant corner of the earth which might well be left in obscurity, or to whatever fortune the future may bring. I am dealing with a vast territory, a valley some hundreds of miles in extent, a jewel of the Dominion, equalling in fertility the brightest gem in the Crown.

I have made this short digression to show that I am not to be reproached with giving too much importance to the subject in hand, or to a matter of insignificant moment.

II.—THE PRAIRIES.

Notwithstanding its astounding depth, Lake Témiscamingue has numerous and extensive bays, which are simply inundated prairies. Nothing can equal the fertility of these lands, consisting, as they do, of nothing but the richest alluvium. Moreover, the higher parts of these prairies, which are uncovered at low water, give most ample proof of their fertility by the abundance of forage they yield during the two months they are exposed to the beneficent influences of the light and heat.

But over two-thirds of these bottom lands are to be allowed to remain for ever buried beneath 3 or 4 feet of water.

Let these submerged plains be uncovered, and whole townships will stand forth, as by enchantment, ready for the plough without compelling the settler to undergo the heavy toil of clearing.

At the head of the lake alone I calculate there are 13,000 acres of this valuable land, and at other places more than double that number.

Would not the acquisition of such lands as these suffice, of itself, to indemnify the Government for the whole outlay? Let these lands be sold at higher prices than other lands. No one will object to this. Say, for instance, 25,000 acres (the quantity is greater) at \$4 or \$5 per acre, and you have a sum of \$100,000 or \$115,000.

Where is the settler who would not give \$5 per acre to get his land cleared? Here we pay \$9 or \$10 an acre to get the land cleared of brush and rubbish.

III.—WET LANDS.

But there is something more, and to this I would specially call attention. All the lands at the head of the lake, that is to say, those along the rivers Blanche, Ottawa and Otter, remain submerged too late in the spring to allow the settlers to sow them in proper season. Late sowing is followed by late ripening. Then come early frosts, caused precisely by over-prolonged moisture of the soil, and in one night the settlers' fairest hopes are blighted. Last summer I myself saw splendid fields of wheat blighted by a single untimely frost. Let it not be inferred from this that the climate is an inclement one. A few miles away, in well drained lands, the crops were quite uninjured.

Yet the finest and most fertile lands are those which have had to suffer.

What is the remedy for this? Lower the level of Lake Témiscamingue.

The two reasons above mentioned would, of themselves, go far to settle the question, but there are others still.

THE SILVER MINE.

This mine, which is already a celebrated one, has attracted the attention of several capitalists, but there is a difficulty: the richest lodes extend beneath the lake but not under very deep water. Mr. Wright, who is himself the proprietor of the mine, says that lowering the lake, even 15 feet, would enable him to work the mine easily.

OBATJIWANING BRIDGE.

Obatjiwaning is the narrowest part of Lake Témiscamingue, but the depth of water in the middle of the strait is 11 fathoms. This is the point where the bridge of the St. Jérôme and Témiscamingue Railway would probably be built. Here also the lowering of the lake would be of great benefit.

V.—COROLLARY.

After the three powerful motives I have just enumerated, I cannot refrain from saying this: how absurd and disastrous is the idea entertained by those who propose to erect a dam at the head of the Long Sault.

Those persons evidently know nothing about Lake Témiscamingue.

VI.—OBJECTION.

But would not the Blanche, said to be navigable for a distance of some 30 miles cease to be so, if the lake were lowered?

ANSWER.

I do not believe it; and for the following reason: In the first place, the Blanche is very deep; moreover, it flows through an alluvial soil, in which it will soon deepen its channel, so soon as its waters receive the least incline.

But even though that should not take place, it would be a smaller matter to destroy the navigation of the Blanche than to leave the splendid lands on its bank to be inundated.

VII.—SPECIAL REASONS FOR HURRYING ON THE BUILDING OF A DAM BETWEEN
TÉMISCAMINGUE AND MATTAWA.

1. *The Lumber Trade.*—The possibility, utility and economy of constructing a dam in accordance with the plan I suggest being established, what is to be the conclusion? That the sooner the dam is built the better it will be for the interest connected with the Ottawa valley, and, I would add, for the interest of the city of Ottawa itself.

I agree on this point with those who hold that this dam is the only means of securing for the capital of the Dominion the trade of the Upper Ottawa.

Yes, if these works are not speedily carried out our rich products will be directed by rail towards the great lakes. It is, therefore, a matter to which the Government at Ottawa cannot remain indifferent.

Témiscamingue is the great, I may say, the only outlet, present and future, of the inexhaustible wealth of the forests surrounding both it and its tributaries, over an area many hundreds of miles in extent.

Towards these untouched forests the attention of capitalists, eager to secure a share of the lumber trade, is now beginning to be directed. While a multitude of limits, in fact, whole tracts of country have been devastated and ruined, perhaps for all time, in other parts of the Provinces, the valley of Témiscamingue is still almost intact. There is, therefore, room to hope that the lumber trade will continue to exist here for many years yet. It is then the interest of the Government to adopt every means of securing the important revenue derived therefrom and, at the same time, to protect the interests of the firms engaged in the work.

Now, so long as there is a Long Sault between Témiscamingue and Mattawa, so long must industry, trade, agriculture, &c., remain stagnant in that district. The Long Sault is the nightmare of business men, the horror of the poor shantymen. He who succeeds in doing away with it will be justly regarded as a benefactor to suffering humanity. Here man has to do the work of steamboat, locomotive, waggon and beast of burden. No navigation on the water, no road on the land. Here your fine gentleman must come down to the level of the working man, and the *habitué* of the Pullman would be only too glad to take refuge in a third-class car.

Thus it is, that every one venturing into this remote world called Témiscamingue, must take his share of the miseries of the Long Sault. Does it not seem as though his formidable rapid were the angel with flaming sword appointed to guard the entrance of the earthly paradise?

And when we reflect that a 32-foot dam would do away with the obstacle, the wonder is that it was not built long ago.

Should the prospective outlay be one of the causes of this delay, permit me briefly to enumerate the yearly returns of revenue this dam would bring to the Government, as regards the timber trade alone.

I have these details from Mr. O. Latour, proprietor of limits on Témiscamingue and the Kippewa, and a man of great experience in business:—

1st. Two thousand cribs pass through the Long Sault yearly. The passing of each crib cost \$3.

If the Long Sault were obliterated by a dam at the Mountain or the Maples, the running of each crib would not cost more than 5 to 10 cents.

Now, by erecting a slide at the dam the Government could levy a toll of \$1.50 or 2 per crib, which would give a yearly revenue of \$3,000 to \$4,000. The timber owners, even after paying that toll would be the gainers by \$1 per crib, to say nothing of the safety and rapidity of transit, and freedom from the fears and accidents unavoidable in the Long Sault.

2nd. To take a raft through the Long Sault is the work of three or four days. With a dam at the Mountain or at the Maples, a steamboat would tow the rafts from the head of the lake to the slide, a distance of 101 miles. There, if found most expedient, the timber might be forwarded by train to any part of the country.

3rd. The cost of carrying provisions from Mattawa to Témiscamingue is \$2 per 100 lbs. With the dam built, the cost would be 75 to 80 cents only.

Hay, which is sold below at \$10 per ton at the highest, costs here \$50.

4th. Each year a million of logs pass out of Lake Témiscamingue. Thousands of them remain stranded on the shoals of the Long Sault.

2. *Settlement*.—The lands, even after survey, remain unoccupied, because between Mattawa and Témiscamingue there stands a barrier which can only be passed by paying out money, and at the risk of heavy loss by the poor settler.

VIII.—PRACTICAL CONCLUSION.

It is time to conclude. If I have well fulfilled the task I have undertaken, must have said enough to open the eyes of the Government as to this section of the country, which has been too much ignored and neglected.

What has not been done for Lake St. John? And yet, with a smaller outlay Témiscamingue would yield a hundred fold more than Lake St. John.

How much do we not hear about Manitoba and the prairies of the North-West and yet here, quite near us, are lands fully equal to Manitoba, to say nothing of the water and timber.

Témiscamingue has a charming climate; all cereals grow there in abundance grapes ripen in the open air. Mineral wealth (lead, silver, &c.) is not wanting. The woods are fragrant with sweetest odors, and there is an abundance of the pure running water.

Fish swarm in the lakes and smaller rivers, and especially in the vast basin where vessels of the tonnage of the "Great Eastern" may float in safety beside the little bark canoe.

If, with the useful, it is desired to find the agreeable, Témiscamingue is quite the equal in natural beauties to the picturesque banks of the Saguenay. On our lake of fathomless water, nature by turns, simple and magnificent, gay and severe, has its attractions for all tastes. The painter will here find color, the poet sighs, the tourist emotion, the weary relaxation, and the man of enterprise a field for action.

In short, there is here a vast territory well fitted for thousands of our people who take refuge abroad, and who would be here assured of a good living, prosperity and comfort.

What is needed, Sir, in order to bring in these settlers and create here hundred of flourishing townships?

Perhaps but one word from yourself, Sir—one sign of approval on your part. You have done your part in all the noble and useful undertakings of our day, which serve to advance and elevate our country. Is this one alone to be found undeserving of your favour?

I cannot believe it, Sir. All eyes are looking towards you, in the hope that you will extend your powerful protection to the interest of this section of the country.

And if we, poor missionaries, venture to raise our humble voices to-day, it is because, in the first place, we know that in our country the interests of colonization are the interests of religion. In the second place, it is because we feel that your enlightened views, prudence and energy, render you eminently capable of carrying out this great undertaking.

This, also, will, I trust, be my excuse for interfering in matters of which I perhaps know little. I do not, of course, pretend to force my opinion on any one, but simply to offer my views in a straightforward manner. Should any of my opinion meet your approval, I should be much gratified, more especially if, in the end, the should in any degree benefit my country.

I have the honour to be, Sir,

Your obedient servant

C. A. M. PARADIS,

Priest, O.M.I., Missionary.

TÉMISCAMINGUE, 29th December, 1883.

APPENDIX No. 7.

R E P O R T

ON THE

GEODETIC LEVELLING

BETWEEN LAKE CHAMPLAIN

AND

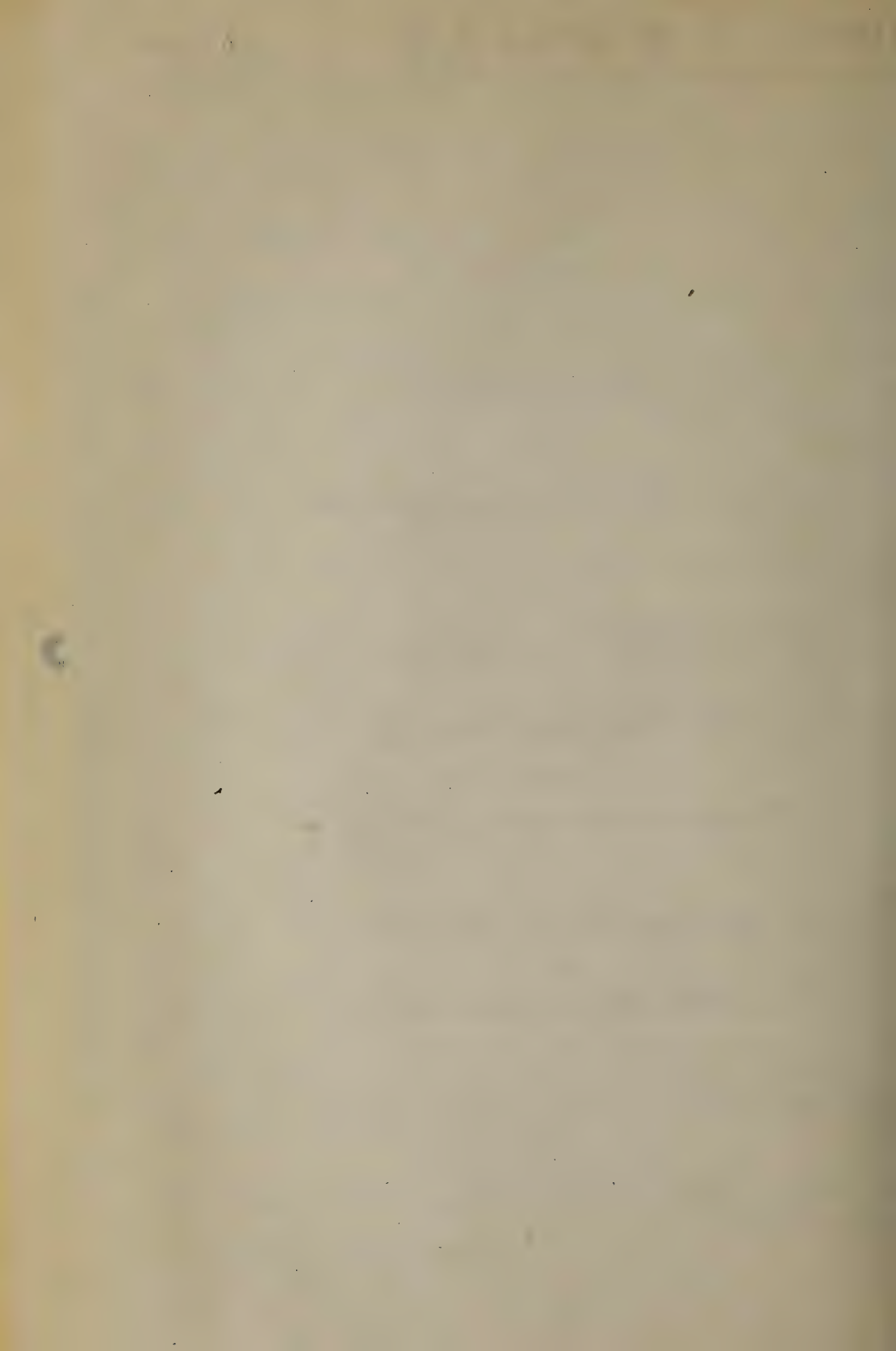
TIDEWATER IN THE ST. LAWRENCE,

BY

H. F. PERLEY, Chief Engineer,

AND

R. STECKEL, Engineer in charge.



APPENDIX No. 7.

REPORT ON THE GEODETIC LEVELLING FROM LAKE CHAMPLAIN

TO TIDEWATER IN THE ESTUARY OF THE ST. LAWRENCE.

Ref. No. 61892.

CHIEF ENGINEER'S OFFICE,

OTTAWA, 16th September, 1885.

SIR,—Herewith I transmit a report by Mr. R. Steckel on the Geodetic levelling operations carried on by him between Lake Champlain and tide water in the St. Lawrence, embracing the whole of the River Richelieu from Rouse's Point to Sorel, and also certain plans in connection therewith.

I have the honour to be, Sir,

Your obedient servant,

HENRY F. PERLEY,

Chief Engineer.

A. GOBEL, Esq.,

Secretary Department Public Works.

DEPARTMENT OF PUBLIC WORKS,

OTTAWA, 26th August, 1885.

SIR,—I have the honour to submit, as proposed in my letter of 26th June, 1884, report on the three sections of the geodetic levelling operations between Lake Champlain and tidewater in the St. Lawrence, embracing the whole River Richelieu from Rouses Point to Sorel, which have been carried out under my direction in 1883-84 and 1884-85. Also plans and profiles (Ill. Nos. 4, 5 and 6) showing the position of the lines of levellings, cross-sections, bench marks, &c., as well as the surface declivities of the River Richelieu; the lifts of the reaches of the Chambly Canal, and the depth of the water, as correctly as the information available would permit; the horizontal scale adopted being $\frac{1}{80000}$ or 5,000 feet per inch and the vertical $\frac{1}{800}$ or 25 feet per inch.

In making plans of the Richelieu River and adjoining lands, the cadastral plans of the parishes on both sides of the river, procured from the Quebec Crown Lands Department, military, Ordnance, Admiralty, Chambly Canal, and such other old plans and profiles of the country traversed as I could also find at Ottawa, Montreal and Quebec, were used to the best advantage. I was also glad to avail myself, in his connection, of the valuable information afforded by the new and more accurate plans, with soundings of portions of the river surveyed during the past two or three years, under the direction of E. H. Parent, Esq., Superintending Engineer of Dominion Canals, Montreal; copies of which were transmitted for my use in May and one last by the Department of Railways and Canals.

As the data available for making the river plans which are submitted herewith, were of a somewhat disconnected and occasionally discordant nature, and having myself made no land measurements, nor taken any directions or soundings, I am not in a position to state that these plans can be considered accurate in every respect; but I believe they are sufficiently so for the present object. In addition to the bench marks, every tenth levelling station is also indicated, with a view of facilitating the computation of the elevations of the ground in any locality along the lines levelled, it might be found desirable to ascertain the same, by means of the corrected fore and backsights entered in the computation sheets appended hereto. (See Appendices Nos. 1, 2, 3.)

Before offering any remarks concerning the results obtained, as given in the abstracts embodied herein, I will proceed to describe the perfected rod and precision pivot level which were used, for the reasons set forth in my preliminary report; and also the methods of observing, recording and computing elevations, that were followed. The accompanying illustrations Nos. 1 and 2, diagram, and specimen pages of the level and rodmen's books, etc., will, it is hoped, render the descriptions sufficiently clear and distinct.

The rod selected by me for adaptation to use in connection with the improved geodetic levelling instrument, which I procured from M. M. Fauth & Co., of Washington, makers to the United States Coast and Geodetic Survey, is that known as the "Philadelphia rod;" the execution of the alterations required was entrusted to Mr. E. Chanteloup of Montreal, who it is needless to add was up to the mark as usual.

The "Philadelphia rod" consists in its normal state—*vide* fig. 1, Ill. No. appended hereto—of two superposed flat bars of properly seasoned mahogany, 0.14 foot wide by 0.075 foot thick, which are sub-divided into feet and tenths, by black lines painted on a white ground, from 0 to 12 feet, between two fillets 0.025 foot to 0.03 foot wide, standing out 0.005 foot above the white-figured face; the figures denoting the tenths, being put on in black, and those indicating the feet in bright red. The front or top bar A is generally from 6.5 to 6.8 feet long, and the rear bar B, 7.15 to 7.25 feet; and the two bars are made to slide freely over each other through two rectangular brass boxes C and D, one of which is secured to the upper end of the bar A, and the other to the lower end of the bar B. The slide box C, fixed to the upper extremity of the front bar A, is provided with a feather-edged brass seal 0.1 foot long divided into half-hundredths, and a clamping screw which serves to fix the upper end of the bar B, carrying the target used with the rod, at any height that may be found necessary between 7 and 12 feet.

It will be seen from this description that the feet and tenths can be read off by the observer himself without any difficulty, with the rod 1,000 feet distant or more from the level; and when the target is brought into requisition, as for turning point &c., an approximation within a two-hundredth part of a foot, can invariably be obtained.

Now, in order to place the work more fully under the immediate control of the observer and recorder, it was considered advisable to suppress the sliding target altogether, in all ordinary operations, thus relieving the rodmen of the greatest amount possible of responsible work.

Fixed white target lines 0.008 foot wide were therefore painted at every half-tenth of a foot, at first on top of both the raised fillets themselves, blackened for the purpose, and after the close of the first season's field work, on black stripes 0.02 foot wide put along the inner edges of the fillets, on the protected face of the rod, in order to prevent the lines from being too easily defaced by rubbing. On these white lines, micrometer pointings can be rapidly multiplied with the improved pivot level which is especially constructed with this important object in view; being provided with appliances for moving the telescope in a vertical plane, and simultaneously ascertaining with a filar micrometer, the distance traversed by the wires on the rod above or below the truly horizontal pointing.

By fixing the distance between the centres of the target lines at 0.05 foot, the pivot motion of the telescope is still kept within sufficiently narrow limits, that the

revolutions of the micrometer screw may be assumed to be directly proportional to the arc through which the telescope has to move, and the average angular value of a division of the micrometer head, may also be considered to remain sensibly constant. At the same time the observer is enabled to estimate, with sufficient accuracy for calculating the horizontal distance from rod to instrument—say within half a hundredth of a foot—the vertical distance from each one of three horizontal wires which are placed in the telescope for that purpose, to the nearest upper or lower target line, or *vice versa*, without the retina of the eye being fatigued by the confusing image of a row of equal, alternately dark and white narrow rectangular spaces.

When levels have to be carried across wide rivers, gullies, etc., ordinary targets 0.55 foot long by 0.43 foot high, painted red or black, with white sighting lines in the centre, 0.14 foot wide or so, have of course, to be used. In such cases two targets can be fixed by each rodman, in accordance with signs made by the observer, at such heights on the rod as will enable the latter to determine the correct distance and difference of level, by means of micrometrical measurements; the targets not to be disturbed until the observer has had an opportunity of verifying their position himself. In many instances the targets may no doubt be fixed approximately by the observer before any observations are made, thus obviating the necessity of signalling to the rodman. (See fig. 2½ Ill. I.)

To obtain greater rigidity when the rod is opened out the full length of 12 feet, stiffening bar S, firmly secured to the back of the front bar A and the foot of the rear bar B, with small brass screws let into correspondingly threaded brass bearing plates sunk into the wood, was fitted in the space occupied by the bar B when the rod is closed. As a rule the rod is intended to be closed, only for transportation to the box over long distances; in this connection it may be stated that the improved rod, being but 7 feet long when closed, is more easily handled than a metrical rod of over 10 feet in length in one piece.

The foot of each rod is armed with a brass shoe, having a bracket on one side fast in one piece with it, for supporting a circular level L mounted on three adjusting screws M, which is a guide for the rodman for setting his rod up plumb. This level must be adjusted, so that when the bubble occupies the centre of the circular vessel, the rod is truly vertical; the adjustment can easily be verified by suspending a plumb bob from the end of a long nail driven into a tree, a wall, &c. By placing the level near the foot of the rod, greater solidity and permanency in the adjustment are secured, and the rodman is forced to turn his eyes towards the ground while the observations are being made, thus affording the observer a ready way of detecting any negligence on his part in keeping the rod vertical.

A ball support O, of hard phosphor bronze, fitting into a corresponding cavity formed in the cast-iron foot plate on which the rod is placed, is secured in position at the foot of the same, by means of a tapered pin passed from one side of the shoe through the rod and the shank of the ball, and screwed into a brass nodule left on the inner face of the shoe to receive its end; the pin being tapered, is sure to press the shoulder of the ball closely against the bottom of the rod proper.

As the 0 of the graduation coincides on each rod with the underside of the brass shoe, it is necessary that all readings be increased by the distance from this zero point to the foot of the ball support. This distance, which is called the index error, as measured on the four rods adapted to "geodetic levelling" and stamped A, B, C, D, a short time after the field operations were commenced in September, 1883, soon as suitable calipers with accessories could be procured, and the same distances were re-measured at the close of the first season's work; the result being as indicated in the following table, after about six weeks continuous use* :—

*Notwithstanding the fact that the wearing down of the ball supports can be kept within narrow limits, with great care on the part of the rodmen, it is intended to procure tight fitting leather or rubber cases for covering the balls, while the rods are being transported mounted to and from the work over long distances.

Distinctive letters stamped on rods.	Index error.	
	1st Measurement.	2nd Measurement.
A	0·0994 foot.	0·0989 foot.
B	0·0973 "	0·0968 "
C	0·0957 "	0·0953 "
D	0·0993 "	0·0990 "

Of these rods only three were used simultaneously in the field, the fourth being kept in reserve, to be available in case of an accident to one of the others. In 1884 the index error of each rod was determined about once a month.

As some difficulty was experienced during the first season's operations in measuring the distance from the 0 of the rod to the water surface, with sufficient accuracy for the proper determination of small surface declivities in the river, I have had a kind of cathetometrical apparatus made for screwing to the brass shoe of the rod on the opposite side of the circular level, as shown in appended illustration No. 1.

This appliance consists of a bracket G, carrying a guide rod or pin H parallel to the levelling rod, which is divided into hundredths of a foot for two-tenths of a foot in length, viz., from the 0 point placed 0·2 foot above that of the levelling rod scale downwards. Over this guide pin passes a tube or sleeve I, with a slit about 0·22 foot long by 0·02 foot wide, so as to leave the whole of the divisions on the pin plainly exposed to view. The sleeve carries at its lower end a point J, with tip at same level as foot of ball, and on each side of the slit there is a vernier K, permitting to take readings to 0·001 foot.

The levelling rod being held vertical, the point J, the stem of which can be lengthened as may be found requisite, by the addition of extension pieces R, is brought in contact with the water surface, by moving the slide or tube up or down with the hand, when it is fixed in position by means of the pinch screw N; the small pin P prevents the sleeve from falling off the guide when left unsecured.

The foot plates are of cast iron, triangular in form, each side being about 0·45 foot long; they are provided with three teeth each, for fixing firmly into the ground with the foot, and with a short chain for lifting and carrying from station to station. On the top there is the spherical cavity for the reception of the ball support already referred to, and the underside is planed off, in order that the index error may be satisfactorily determined for each plate and ball by measuring with a micrometer caliper: the plate, ball and a cover placed over the stem of the same and resting fairly on its shoulder.

The "geodesic micrometer level" made use of (*See* Ill. No. II, appended hereto) consists of four principal parts, three of which are put together for transportation on the field, in one piece. These are:—

1° the tripod, with legs of open work, strong yet light.

2° the main body, resting on three levelling screws G on top of the tripod, which consists of a vertical axis A, about which the whole instrument can be revolved, with superstructure carrying two "wyes" Y Y' and a micrometer screw M for supporting the telescope; also, a horizontal limb C, with clamp and tangent screws B and D.

3° the telescope T.

Total weight of the instrument and stand, exclusive of striding level = 23 lbs.

The fourth part is the striding level E, which has an air chamber at one end, so that the length of the bubble can be regulated at pleasure; it is always carried in the hand by the observer when going from station to station, being placed on the collars of the telescope only after the tripod is firmly planted in its proper position, to avoid all violent jarring.

The telescope T is mounted on the wyes, Y Y', in hard bronze rings or collars R, and being completely detached, can be turned about its optical axis and also end for end; and as the striding level is also loose and reversible, all errors of collimation and level adjustment can be eliminated. The micrometer screw M, (Fig. 3), is mounted under one of the wyes Y, at the eye end of the telescope, and can be raised or depressed, while the other wye Y', revolves on a pivot or hinge F, provided at the foot of the same, so that the small angle between any horizontal direction determined by bringing the bubble into the centre of the tube with the aid of the levelling screws G, and the pointing to the target line nearest to the said direction, whether above or below, can be conveniently and accurately measured. The micrometer head is graduated into 100 parts or divisions, and tenths of divisions are estimated by the eye, while whole revolutions of the screw are shown on a steel scale S by an index I, moving up and down when the screw is worked, *Vide* Fig. 3. On account of the centre of motion F being below the object end wye of the instrument, the micrometer cannot be used for measuring angles of any great extent, owing to the variation in the value of a turn of the screw produced by the eccentricity. This, however, is never required, for the largest angle that might have to be measured, is that subtended by a height or space of 0.025 foot at the minimum distance at which the rod can be seen distinctly with the telescope—say at 25 feet. The tangent of this angle would be 0.001, corresponding to an angle of about $3\frac{1}{2}$ minutes; even for this maximum angle to be read, the effect of the eccentricity may be said to be inappreciable; in practice, however, the least distance at which the rod is generally read, much exceeds 25 feet, and in exceptional cases the height of the telescope can always be adjusted so that the horizontal pointing may be less than 0.025 foot from the nearest target line.

The horizontal circle C, $4\frac{1}{2}$ inches in diameter, divided into degrees and half degrees, with two verniers permitting to read to single minutes, is added underneath the telescope, or rather underneath the cross-bars carrying the wyes, so that directions can be taken, by means of which, together with the distances measured with the stadia wires in the telescope, the lines of levels run may be shown, at least approximately, on cadastral or any other plans of the locality available for the purpose.

False wyes $y y'$, are provided for lifting the telescope out of the regular wyes Y Y' with the aid of the screw e , and supporting it during transportation on the work; and also a pin f , with cam or hook for raising the free wye Y' under the eye end of the telescope, off the top of the micrometer screw, with a view of preventing useless wearing of the collars, wyes and fine threads of the screw.

Mean value of one level division of 2 millimeters in length = 3" nearly: one division of micrometer head = $\frac{1}{100}$ part of one turn of screw M, corresponds to 2.24 seconds. Aperture of telescope = 0.12 foot: focal distance of object lens = 1.34 feet.

Magnifying power:

1° with Ramsden eye piece, composed of two plano-convex lenses, having equal focal lengths, of about 0.034 foot—say 37.

2° with Kellner achromatic eye piece composed of two bi-convex lenses, of about 0.083 foot focal length each—say 26.*

Four wires are stretched across the diaphragm, viz., one vertical d and three horizontal a, c, b , which are disposed as shown in Fig. 2, Ill. No. II. The distances ac, cb , intercepted by the same, are in the ratio of 7 to 3, so that the wires a and b are plainly distinguishable from each other at any time during the observations, and the actual position of the telescope, whether erect or inverted, is also easily recognized; and if the three wires are read the record will unmistakably indicate the said position, apart from any special reference to the same. The angular distance from the central line c to b is 3'—42.5", and from the central line c to a : 8'—39.1"; that between the extreme wires a and b being therefore : 12'—21.6".

The inequality of the collars was determined September 1st, 1883, when their difference in height was found to cause an inclination corresponding to $\frac{9}{10}$ of a divis-

* M. M. Fauth & Co. estimate these magnifying powers at 32 and 24 respectively.

ion of the micrometer head = 2.016 seconds. Another set of observations made 16th October following showed that the height corresponding to $\frac{2.5}{10}$ micrometer divisions = 2.128 seconds, was the correction to be added (according to distance) to all readings, on account of the eye end collar being smaller than the other collar.*

METHOD OF OBSERVING.

With a view of checking the work in one operation, whereby a saving of time and expense is effected, two distinct lines of levels marked A and B in the computation sheets and abstracts, with the rods at different distances from the level, were run simultaneously, as practised on the United States coast and geodetic survey. By using three rods the mean time of observation of back-sights was, as much as practicable, without undue loss of time, made to agree with the mean time of fore-sights; and as already stated in my preliminary report of 26th June, 1884, to prevent in a measure the gradual accumulation of error supposed to arise from working constantly in the same direction, alternate sections of about 25 miles in length are being run in opposite directions.

The movements of the three rodmen carrying say the rods A, B, C, and the order followed in observing the back-sights and fore-sights from each station, is plainly shown on the diagram herewith, where the letters *a, b, c, d, e, f, g, h, i, j, k, l, m* and *n* indicate the position of the foot plates, and the figures 1, 2, 3, 4, the order of the observations, in every set of four taken from each one of the levelling stations S_1, S_2, S_3, S_4 , &c.

Rodman A carries two foot plates, one of which he leaves behind him in the ground after it has been used for a fore-sight, and returns to the same for the back-sight.

With instrument at station S_1 we observe:—

Back-sight (1) to rod A on plate at *a* generally about 90 to 125 paces from S_1 , and sometimes more in clear weather and on tolerably level ground.

Fore-sight (2) to rod C on plate at *d*, planted by rodman also about 90 to 125 paces from S_1 .

Fore-sight (3) to rod B on plate at *c*, usually from 30 to 75 paces or more beyond S_1 .

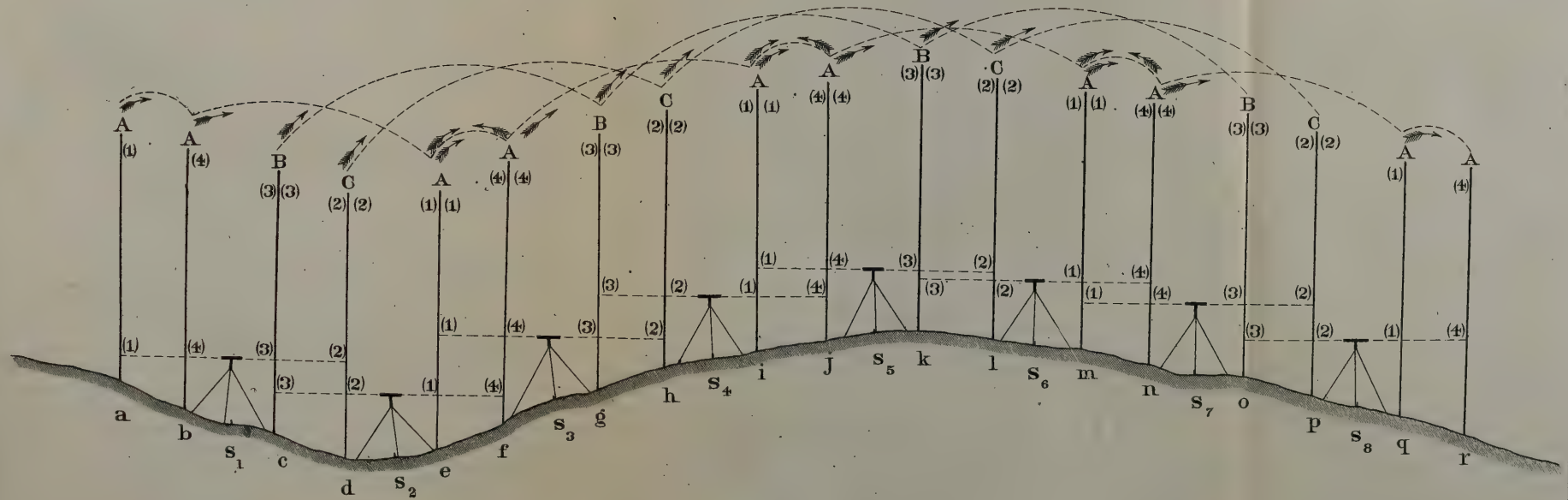
Back-sight (4) to rod A on plate at *b*, distant also from 30 to 75 paces or more from S_1 .

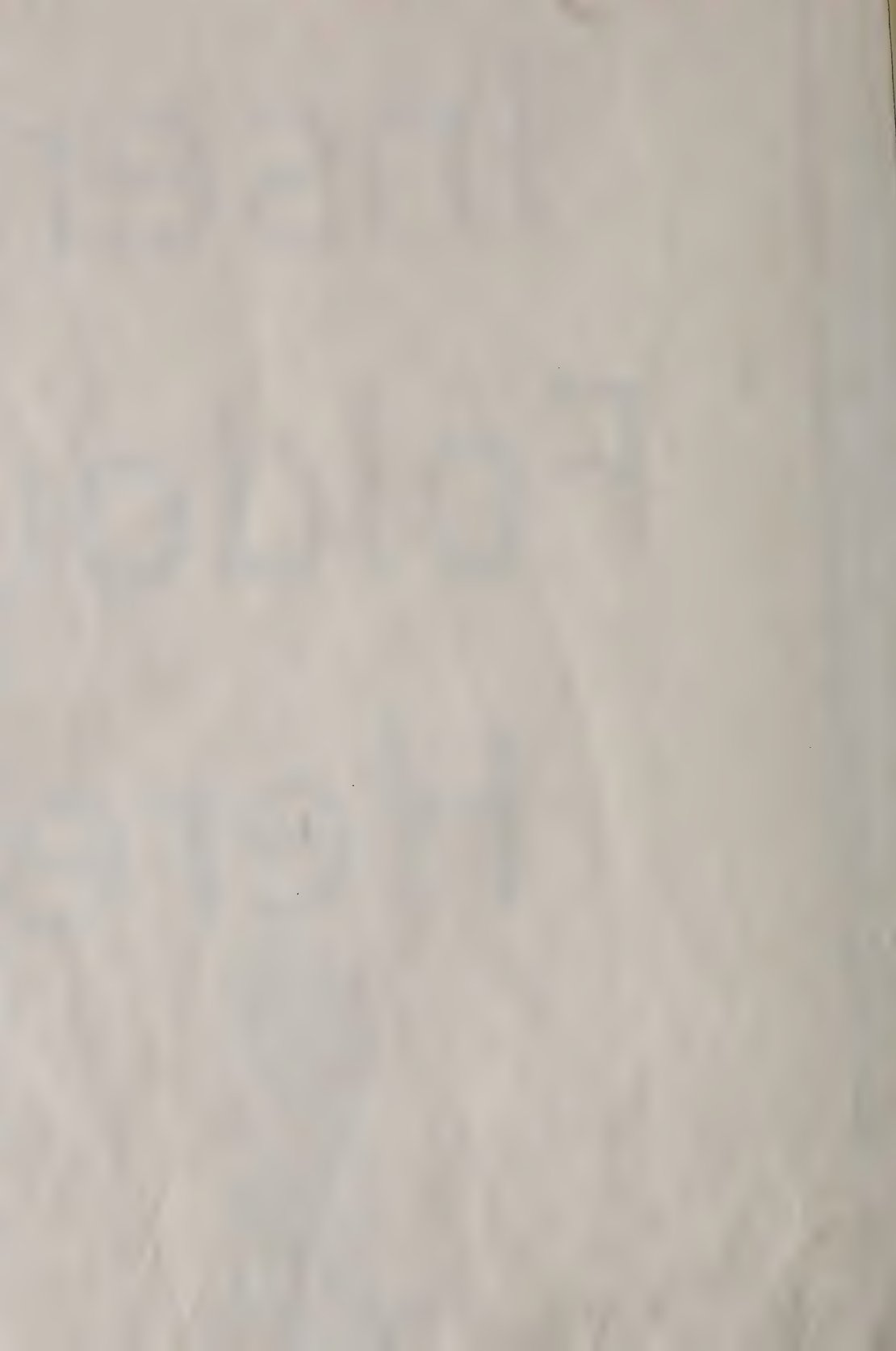
While the fore-sights (2) and (3) are taken, rodman A has ample time to travel from *a* to *b*. After reading the rods, the directions $S_1 b a$ and $S_1 c d$ are taken. The points *b* and *c* and the levelling station S_1 are, as a rule, so placed by the eye, that *a, b, S_1, c, d*, may lie as nearly as possible in one or the other of the two right lines $a S_1$ and $S_1 d$; when this disposition of the said points is not practicable, the directions $S_1 b$ and $S_1 c$ have also to be taken to establish the position of the line levelled.

The difference between the fore-sights of the preceding set of levellings is now compared with that indicated by the corresponding back-sights taken from S_1 , and if the two differences are found to agree within about 0.02 foot, the telescope is lifted out of the regular wyes and supported on the false ones, the weight of the same and substructure being taken off the micrometer screw at the eye end; and with these delicate parts thus relieved from pressure, and protected against injury by heavy jarring, the instrument is removed to Station S_2 , say, 30 to 75 paces beyond *d*. During the time of moving the level to S_2 , rodman A, who, as stated, always car-

*N. B. By a clerical error the correction necessary owing to the inequality of the collars, was assumed at 0.2 instead of 0.9 of a micrometer division, in the whole of the computations made for section No. 1. The difference due to the additional 0.7 division, which in no case exceeds 0.0013 foot, was allowed for separately, in abstract 1 only, embodied in this report: it was not considered essential to correspondingly amend the abstracts for cross-sections levelled in 1883. (See Appendix No. 4, pages 1 to 38).

DIAGRAM showing movements of Rodmen with Rods A, B and C.





ries two foot-plates, passes from b to e , viz., a corresponding distance of 30 to 75 paces or more beyond S_2 , as indicated by an arrow on the diagram. Should the discrepancy between the differences just referred to, turn out to be greater than the maximum accepted for errors of level and reading, there is no alternative but to return to the last bench mark correctly established.

From S_2 we read:—

Fore-sight (1) on rod A at e ; the rodman here leaves one of his plates in the ground to be used for the back-sight at e .

Back-sight (2) on rod C at d .

Back-sight (3) on rod B at c .

Fore-sight (4) on rod A at f .

The difference between backsights (2) and (3) is here compared with that between the corresponding foresights from S_1 .

After the last fore-sight the rodman at f returns to e , in order that the first observation from S_3 may, as a rule, be made without having to change the focus of the telescope. The directions $\overline{S_2 e f}$ and $\overline{S_2 d c}$, or such other directions as may be required to locate the line of levels, &c., are then taken, when the two rodmen at d and c move to h and g respectively, with their plates and rods, C and B; the distances $\overline{S_3 g}$ and $\overline{S_3 h}$, being paced off beyond the third levelling station S_3 , so as to make them nearly equal to $\overline{S_3 f}$ and $\overline{S_3 e}$.

From S_3 we observe:—

Back-sight (1) on rod A at e , generally, as already stated, without changing the focal adjustment of the telescope.

Fore-sight (2) on rod C at h .

Fore-sight (3) on rod B at g .

Back-sight (4) on rod A at f .

This system is adhered to throughout the work; rod A is always observed on first, whether it be placed for a back-sight or a fore-sight, in order to give the rodman time to move to the second point in the same set of levellings, where he has to put up.

The observations from each station are conducted as follows:

The micrometer head is turned so as to bring the division for which the axis of the telescope is found to be truly perpendicular to the vertical axis, opposite the index, when the instrument is levelled with the three levelling screws resting on the tripod head, after which all the undermentioned adjustments are made exclusively with the micrometer screw under the eye end of the telescope.

(a) Observer reads the three horizontal wires, feet and tenths being taken directly as given by the rod, and hundredths estimated by the eye, counting from the white half tenth division marks, and also selects the proper line to be used as a target for micrometrical measurements, viz., that nearest to the centre wire.

(b) Recorder, who, standing nearly opposite the centre of the telescope, is in the best position to avoid parallax in reading level, brings bubble again accurately in centre of tube with micrometer screw, if not perfectly so after the first reading of the wires; next, observer ascertains precise position of micrometer head for horizontal pointing with telescope erect, marked E in level book, and level direct, marked D, for this set of observations.

(c) Target line bisected by observer with central wire, and micrometer reading taken for telescope erect E and level direct D.

(d) Striding level lifted off telescope and reversed R, by recorder, viz., turned end for end. Target line again accurately bisected with the aid of micrometer screw by observer, if needed after the last operation, and micrometer read for telescope erect E.

(e) Bubble again brought to centre of tube by recorder and micrometer reading of horizontal pointing taken by observer, and recorded for level reversed R and telescope erect E.

(f) Telescope turned half round in the wyes by observer, or inverted, marked I; bubble moved back to centre of tube by recorder, and micrometer read and recorded for horizontal pointing with level reversed R.

(g) Target line bisected once more by observer, and micrometer readings recorded for telescope in inverted position I and for level reversed R.

(h) Level replaced in direct and original position D on telescope by recorder. Target line bisected by observer—always with central wire, and by working the micrometer screw, and micrometer reading taken by him for telescope inverted I.

(i) Bubble moved to centre of tube by recorder, and micrometer read by observer for horizontal pointing, with telescope inverted I and level direct D.

On the sample page herewith are given the successive steps of the operations performed at each station, indicated by the letters *a, b, c, d, e, f, g, h, i*; and showing such of the computations as are made directly in the field book, as well as the directions and general character of the notes taken.

The numbers 1, 2, 3, 4, showing distinctly the order in which the observations were made, are entered in the level book on the field, as also such distances as were paced by the observer or recorder, and as many of the rodmen's paces as possible, as extra safeguards against errors, in case of an inversion, at any time, in the regular disposition of the rods, by mistake or otherwise.

In computing the distance from level to rod, the height intercepted on the latter between the centre wire *c* and that farthest away from it *a*, is taken as the argument. (See elevation of diaphragm, Fig. 2, Ill. No. II.) But instead of directly employing the difference \overline{ca} , between the readings of the two wires *c* and *a*, an arithmetical mean between the said difference \overline{ca} , and the product of the space \overline{ab} , intercepted between the extreme wires *a* and *b*, by a constant factor (0.7) specially determined for use in deducing the distance between *c* and *a*, from that between *a* and *b*, was preferably adopted, with a view of eliminating or correcting, as much as practicable, any small inaccuracies that might creep in, owing to the subdivision of the half-tenths into hundredths, &c., by the eye, or otherwise.

Moreover, in case of a large error of one or more half-tenths being committed in either one of the three readings: by following this method it is sure to come to light, when it can be rectified by means of the rodman's pacing of the distance from the level to his rod.

SPECIMEN PAGE OF THE LEVEL BOOK.

(SPECIMEN PAGE OF THE LEVEL BOOK.)

37

ON Post Road, east side of River Richelieu.
Saturday, 27th October, 1883.

BACK-SIGHT.

No. of Station, &c.	Position of		Rod Readings.	Target Line.	Micrometer Readings.		Remarks.
	Telescope.	Level.	Horizon and Dist. Wires	Horizontal Direction.	Horizon.	Target Line.	
			Feet.	Tempera- ture.	Turns.	Turns.	
(2) Rod C, 6 feet east of centre of road.							
53 3 feet east of centre of road.	E	D	(a ₁) 4·325	(a ₄) 4·00	(b) 20·339	(c) 20·409	Nearly dead calm.
		R	(a ₂) 4·010	84° 21'	(e) ·324	(d) ·409	
	I	R	(a ₃) 3·875	∠ to R.	(f) ·328	(g) ·448	
		D	.....	to (3)	(i) ·335	(h) ·448
*Means.....	0·3150 †126·00	20·332	20·429	45 paces.
(3) Rod B, 5 feet to west of centre of road.							
53	E	D	5·04	4·70	20·327	20·385	Station 53 to water edge, 110 feet.
		R	4·72	.....	·320	·385
	I	R	3·97	87° 30'	·311	·356	
		D	.....	.....	·319	·356
*Means.....	0·7495 †299·80	20·319	20·371	106 paces.

*Computed in office. †Distance level to rod, also computed in office.

(SPECIMEN PAGE OF THE LEVEL BOOK.)

Parish of St. Athanase.
C.F. CHALONER, Observer.—R. STECKEL, Recorder.

37

FORE-SIGHT.

No. of Station, &c.	Position of		Rod Readings.	Target Line.	Micrometer Readings.		Remarks.
	Telescope.	Level.	Horizon and Dist. Wires	Horizontal Direction. — Tempera- ture.	Horizon.	Target Line.	
			Feet.		Turns.	Turns.	
(1) Rod A, 5 feet east of centre of road.							
53	E	D	(a ₁) 2.70	(a ₂) 2.60	(b) 20.240	(c) 20.233	Opposite upper end of the "Mille Roches," past which there are two channels in the river.
		R	(a ₂) 2.60	259° 50'	(e) .241	(d) .233	
	I	R	(a ₃) 2.36	∠ to left.	(f) .238	(g) .190	
		D	.....	to (4)	(i) .235	(h) .190
*Means.			0.2390 †95.69	20.239	20.212	34 paces.
(4) Rod A, 9 feet to west of centre of road.							
53	E	D	3.60	2.90	20.239	20.292	
		R	2.92	253° 54'	.226	.292	
	I	R	2.62	.....	.240	.339
		D	.....	55° Fah.	.247	.339
*Means.			0.6830 †273.20	20.238	20.316	100 paces.

*Computed in office. ‡Distance level to rod, also computed in office.

The rodmen entered on their books, besides the number paces measured by them from instrument to rod: the number of the levelling station: the order in which the rods were observed on, which is indicated by the numbers 1, 2, 3, 4, as well as a sketch or description, showing the exact position of each foot plate, bench mark, &c., on which the rod was placed; nature of ground, crossing of fences, rivers, roads, &c. The rodmen's books are compared with the level books in the house, when such of the distances paced by them as had not been noted by the recorder on the field, are added by him in the level book, to facilitate reference to the same when the computations are being made. (See specimen page of rodmen's books herewith.)

The headings of the computation sheets speak for themselves, and the object of each one of the columns provided needs no further description. As in the level books—the right hand side of the page refers to fore-sights and the left hand side to back-sights. (See specimen sheets herewith.)

The conversion of micrometer divisions into equivalent lineal measures for the respective distances, was effected by means of a table specially prepared for the purpose. A small table was also prepared, with the aid of which the corrections required for curvature and refraction could be expeditiously applied in each case. Copies of both tables are appended hereto. (See Appendices 5 and 6.)

No correction was made for variation of temperature, the effect of such changes on the lengths of the rods during the progress of the work, being considered insignificant.

The dilatation of the wood is only about 0.000004 of the total length for each degree centigrade, and the highest point reached by the mercury in the field was 40°, the lowest being 0°. The deviations during actual working hours, from the standard temperature of 20° centigrade, as per record kept in the field, were found to be for each month, approximately as indicated in the following table:—

Year.	Month.	Maximum deviation of temperature from +20° Centigrade. Upwards+ Downwards—	Average deviation of temperature from +20° Centigrade. Upwards+ Downwards—	Average deviation of temperature from +20° Centigrade. Downwards—	Mean deviation of temperature from +20° Centigrade. Upwards+ Downwards—
1883	September.....	+14°	+ 6°	—3°	+2°
1883	October.....	—12°	+ 1°	—7°	—6°
1884	July.....	+15°	+ 7°	—4°	+5°
1884	August.....	+19°	+10°	—2°	+9°
1884	September.....	+18°	+ 8°	—3°	+5°
1884	October.....	—20°	+ 3°	—4°	—4°

Moreover on the continuous main line of levels, the difference in elevation of the points of beginning and ending of each day's work, was never more than a few feet, and the total fall of the ground passed over from Rouses Point to Sorel is only about 60 feet.

After closing on a bench mark, the distances and levellings computed from the preceding bench were invariably verified, by adding all the columns separately and working out the corresponding total distances and fore and back-sights; when the results had to agree perfectly with those of the consecutive individual computations before being accepted as correct.

Sample pages of the rodmen's books.

1
Main Line along west shore River Richelieu
Monday October 8th 1883. Thiel & Rouiller Rodmen.

Back Sight.		NOTES.	Fore Sight.	
Order No.	Distance rod to level in paces.		Order No.	Distance rod to level in paces.
		<p>Sketch of River Richelieu. The river flows from top to bottom. On the left bank, there is a 'Stony beach' and a 'Low Water mark'. On the right bank, there is a 'Roadway' and 'James Brisbane Rail fence'. Survey points are marked with 'C' and 'D' and elevations: 373, 372, 371, 370. Distances between points are noted: 32, 60, 22, 24. Angles are noted: 18°, 220 1/2°, 40°, 240°.</p>		
			3	34
2	34		2	100
				H - M 2 - 0 PM
3	100		3	34
		Weather very fine		
2	34			1-40 PM.

25
Main Line along west shore River Richelieu
Monday October 8th 1883 J. D. E. Pilon Rodman

Back Sight.		NOTES.	Fore Sight.	
Order No.	Distance rod to level in paces.		Order No.	Distance rod to level in paces.
		<p>Sketch of River Richelieu. The river flows from top to bottom. On the left bank, there is a 'Stony beach' and a 'Low Water mark'. On the right bank, there is a 'Roadway' and 'James Brisbane Rail fence'. Survey points are marked with 'C' and 'D' and elevations: 373, 372, 371, 370. Distances between points are noted: 20, 21 1/2, 31, 22 1/2, 15, 15. Angles are noted: 211 1/2°, 31°, 221 1/2°, 41°.</p>		
4	34		4	100
				2-15 PM.
1	100		1	34
		Marly dead calm		
4	34		4	100
				1-50 PM.
1	100		1	34

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PUBLIC WORKS, CANADA.

Geodetic Levelling, Lake Champlain to tide-water St. Lawrence.

1883-84.

COMPUTATION OF LEVELS, SECTION No. 1, ST. JOHNS TO ROUSES POINT— LINE A—CONTINUOUS LINE.

BACK SIGHTS.		DISTANCE, D.		CORRECTIONS, C.				S _c	T	R=T+S _c	Rods, Bench Marks, Water Levels, &c., &c.	FORE SIGHTS.		DISTANCE, D.		CORRECTIONS, C.				S _c	T	R=T+S _c	Rods, Bench Marks, Water Levels, &c., &c.
From Station No.	Height <i>h</i> inter- cepted by wires	D = 400 <i>h</i>	Target line T —above, +below horizon pointing H.		Inequality of collars.	Curvature and refraction.	Sum of corrs., C.	T Target line.	Corrected rod readings.	From Station No.		Height <i>h</i> inter- cepted by wires	D = 400 <i>h</i>	Target line T —above, +below horizon pointing H.		Inequality of collars.	Curvature and refraction.	Sum of corrs., C.	T Target line.	Corrected rod readings.			
			T—H	T—H										T—H	T—H								
			Micr. Div.	Feet. 1000										Feet. 1000	Feet. 1000						Feet. 1000	Feet. 1000		Feet.	Feet.
309	.71625	286.5	+ 7.0	+21.8	+ .6	—1.7	+20.7	5.90	5.9207	Rod A, on B.M. 34	309	.2245	89.8	—11.6	—11.3	+ .2	— .2	—11.3	3.450	3.4387	Rod C.		
310	.67350	269.4	+ 1.7	+ 5.0	+ .6	—1.5	+ 4.1	4.35	4.3541	Rod C	310	.7530	301.2	— 8.9	—29.1	+ .7	—1.9	—30.3	3.200	3.1697	do A.		
311	.25950	103.8	+22.0	+24.8	+ .2	— .2	+24.8	3.90	3.9248	do A	311	.4610	184.4	—45.6	—91.4	+ .4	— .7	—91.7	1.177	1.0853	Observ'd on a mark 1.1770 feet above chisel line.		
Index correction for (2 A + C) — (A + C) =										0.0991	6.6060												
											6.6124												
											—0.0074												
										0.2339 mile	1.4385	575.4	.....	—131.8	+1.3	—2.8	—133.3	7.827	7.6937	B.M. IX.		
14.15 + 0.0991 + 0.0496 = 14.2987										0.2245 do, mean	7.827 — 0.1333 = 7.6937												
B.M. 34 to B.M. IX		1.64925	659.7	.....	+51.6	+1.4	—3.3	+49.6	14.15	14.2987												
311	.4610	184.4	—45.6	—91.4	+ .4	— .7	—91.7	1.177	1.0853	Observ'd on a mark 1.1770 feet above chisel line.	311	.2160	86.4	+ 9.7	+ 9.1	+ .2	— .2	+ 9.1	3.90	3.9091	Rod C.		
312	.6710	269.4	+ 5.5	+16.0	+ .6	—1.5	+15.1	2.400	2.4151	Rod C.....	312	.71025	284.1	+ 7.7	+23.8	+ .6	—1.7	+22.7	4.05	4.0727	do A.		
313	.2330	93.2	+10.4	+10.5	+ .2	— .2	+10.5	3.900	3.9105	do A.....	313	.22625	90.5	—18.8	—18.5	+ .2	— .2	—18.5	5.20	5.1815	do C.		
314	.6445	257.8	— 6.0	—16.8	+ .6	—1.4	—17.6	7.600	7.5824	do C.....	314	.81525	316.1	+11.8	+41.8	+ .7	—2.2	+40.3	5.65	5.6903	do A.		
315	.2535	101.4	+23.8	+26.2	+ .2	— .2	+26.2	4.400	4.4262	do A.....	315	.20925	83.7	+10.6	+ 9.6	+ .2	— .1	+ 9.7	4.05	4.0597	do C.		
316	.7000	280.0	— .1	— .3	+ .6	—1.7	— 1.4	4.500	4.4986	do C.....	316	.7060	282.4	+ 5.1	+15.7	+ .6	—1.7	+14.6	4.75	4.7646	do A.		
317	.2390	95.6	—11.9	—12.4	+ .2	— .2	—12.4	4.500	4.4876	do A.....	317	.2220	88.8	—20.0	—19.3	+ .2	— .2	—19.3	4.65	4.6307	do C.		
Carried forward.		3.2020	1280.8	.....	—68.2	+2.8	—5.9	—71.3	28.477	28.4057	3.10500		1242.0	.....	+62.2	+2.7	—6.3	+58.6	32.25	32.3086	

(SPECIMEN COMPUTATION SHEET.)

PUBLIC WORKS, CANADA.

Geodetic Levelling, Lake Champlain to tide-water St. Lawrence.

1883-84.

COMPUTATION OF LEVELS, SECTION No. 1, ST. JOHNS TO ROUSES POINT—LINE B—CONTINUOUS LINE.

BACK SIGHTS.		DISTANCE, D.		CORRECTIONS, C.						S _o	T Target line.	R=T+S _o	Rods, Bench Marks, Water Levels, &c., &c	FORE SIGHTS.		DISTANCE, D.		CORRECTIONS, C.						S _o	T Target line.	R=T+S _o	Rods, Bench Marks, Water Levels, &c., &c.
				Target line T —above, +below horizon pointing H.		Inequality of collars	Curvature and refraction.	Sum of corr., C.	Corrected rod readings.									Target line T —above, +below horizon pointing H.		Inequality of collars	Curvature and refraction.	Sum of corr., C.	Corrected rod readings.					Rods, Bench Marks, Water Levels, &c., &c.
		T-H	T-H	T-H	T-H																						
		From Station No.	Feet.	Feet.	Micr. Div.											Feet. 1000	Feet. 1000	Feet. 1000	Feet. 1000								
309	71625	286.5	+ 7 0	+21.8	+ .6	-1.7	+10.7	5.90	5.9207	Rod A, on B.M. 34.	309	6520	261.2	+ 3.3	+ 9.4	+ .6	-1.4	+ -8.6	2.55	2.5586	Rod B.						
310	24.00	98.0	-17.0	-18.1	+ .2	- .2	-18.1	3.50	3.4819	Rod B.	310	239	95.6	+28.1	+29.2	+ .2	- .2	+29.2	4.0	4.4292	do A.						
311	77425	309.7	+10.4	+35.0	+ .7	-2.0	+34.7	5.15	5.1837	do A.	311	4610	184.4	-45.6	-91.4	+ .4	- .7	-91.7	1.177	1.0853	Observ'd on a mark 10 170 feet above chisel line.						
Index correction for (2 A + B) - (A + B) =												0.0992	6.6124														
													6.6050														
													+0.0074														
												0.2150 mile															
												0.2245 do, mean															
B.M. 34 to B.M. IX.	1.7355	594.2		+38.7	+1.8	-3.9	+36.3	14.55	14.6855		1.3530	541.2		-52.8	+1.2	-2.3	-53.9	8.127	8.0731	B.M. IX.							
14.55 + 0.0992 + 0.0363 = 14.6855													8.127 - 0.0539 = 8.0731														
311	46100	184.4	-45.6	-91.4	+ .4	- .7	-91.7	1.177	1.0853	Observ'd on a mark 10 170 feet above chisel line.	311	64800	259.2	- 5.4	-15.2	+ .6	-1.4	-16.0	5.15	5.1340	Rod B.						
312	23725	94.9	- 9.9	- 9.3	+ .2	- .2	- 9.3	3.650	3.6407	Rod B.	312	24925	99.7	+ 9.6	+10.4	+ .2	- .2	+10.4	4.00	4.0104	do A.						
313	7.000	280.0	- .9	- 2.7	+ .6	-1.7	- 3.8	3.850	3.8462	do A.	313	64870	259.5	+ 3.6	+ 0.2	+ .6	-1.4	+ 9.4	3.50	3.5691	do B.						
314	21625	86.5	+18.7	+17.6	+ .2	- .2	+17.6	5.900	5.9156	do B.	314	31675	126.7	- 6.4	- 8.8	+ .3	- 8.8	5.96	5.9112	do A.							
315	75975	313.9	+ 3.0	+26.4	+ .7	-1.9	+25.2	4.650	4.6752	do A.	315	64875	259.5	+ 2.9	+ 8.2	+ .6	-1.4	+ 7.4	4.50	4.5074	do B.						
316	25525	102.1	- 6.2	- 6.9	+ .2	- .2	- 6.9	4.950	4.9431	do B.	316	24075	96.3	- 5.2	- 5.4	+ .2	- .2	- 5.4	4.05	4.0146	do A.						
317	71025	284.1	-10.4	-32.1	+ .6	-1.7	-33.2	3.800	3.7668	do A.	317	67350	263.4	+ 6.5	+ 9.0	+ .6	-1.5	+18.1	5.30	5.318	do B.						
Carried forward	3.33975	1335.9		-98.4	+2.9	-6.6	-102.1	27.977	27.8749		3.42575	1370.3		+18.4	+3.1	-6.4	+15.1	32.45	32.4651								

SECTION No. 1.

Miles.

Section No. 1 of the main continuous line was levelled on the west side of the Richelieu River, partly along the post road and partly along the water's edge, from the town of St. Johns, Q.P., to the village of Rouses Point, viz., going upwards or in a southerly direction. The total length of this section, inclusive of extension from B.M. III, at the N.W. corner of Champlain and Lemoine streets, close to the Vermont Central Railway track, to B.M. 0, near Langelier's mills, *vid* Richelieu and St. James streets and the tow-path of the Chambly Canal, is..... 26.0308

Abstract I, given hereafter, besides showing the results of the levelling on this section, also contains descriptions of the bench marks, including location. Before being entered on this abstract, the results, as directly derived from the two sets of computations A and B, transmitted herewith in Appendix No. 1, pages 1 to 137, were corrected for clerical error of 0.0007 foot per 100 feet, discovered in original allowance made for inequality of collars, which explains the slight variations between the elevations contained herein and those given in the original abstracts, which will be found in Appendix No. 4.

In connection with this section, No. 1, there were levelled in 1883:—

1^o, 59 cross-sections from the main line to the river, &c., forming a total length of 4.1377

The computation sheets for these short cross-sections have been inserted in Appendix No. 1, at the places where the latter intersect the main line; the pages which had to be added expressly for these cross-sections, have been designated by fractional numbers. The abstract of results, showing all the water levels and other points determined on this section, is given in Appendix No. 4.

2^o, two check lines, viz., from B.M. III to B.M. II and to B.M. 2, *vid* Champlain and Bridge streets, having a combined length of..... 0.7360

For computation sheets of these check lines, *see* Appendix No. 1; abstracts in Appendix No. 4.

The main line was run in October, 1883, from B.M. III over the Central Vermont Railway bridge, and thence northward on the post road along the east shore of the River Richelieu, to B.M. XIII made on the corner of a stone house a little above the head of Ste. Thérèse Island; total distance..... 3.6235

The results and descriptions of bench marks are given in Abstract 1 $\frac{1}{2}$, and the computations are shown in Appendix No. 2, pages 1 to 30.

The total length of the 18 cross-sections run in connection with this last line is..... 0.5781

For computation sheets, *see* Appendix No. 2; abstract in Appendix No. 4, pages 39 to 43.

N.B.—The main line was not continued on the east side of the river in 1884, as first intended, to comply with the request of the super-tending engineer of the Chambly Canal and St. Ours lock and dam, for the establishment of correct permanent bench marks in proximity to the works placed under his charge by the Department of Railways and Canals; moreover, the ground on the west side was found to be much more favorable for levelling down to the water, than that on the east side of the river, contrary to what had been represented.

Carried forward 35.1061

Miles.

Brought over..... 35.1061

SECTION No. 2.

- Section No. 2 was run in a northerly direction from B.M. 0, near Langelier's swing bridge; the tow-path being followed, and the post road along the west side of the River Richelieu, until the Grand Trunk Railway bridge at Belœil was reached, when the levels were crossed on this bridge to the east bank, and continued down to B.M. 115 made on an ash stump standing on the west side of the road, some 190 feet to the south of the division line between the parishes of St. Hilaire and St. Charles. Total length of this section *viâ* River Richelieu..... 27.8990
- From levelling station 182 on the post road, a loop line was levelled *viâ* the cross-road leading westwardly to Jacques Colette's swing bridge, and the tow-path of the Chambly Canal, up to the post road swing bridge above lock No. 7 at Chambly Basin, with the double object of determining the exact elevations of locks Nos. 2, 3, 4, 5 and 6, and checking the troublesome piece of work which had to be performed along the rapids opposite the village of Chambly Canton. Total length of this loop line..... 2.7462
- Abstract II, pages 48 to 56, shows the results obtained on this section, *viâ* the loop line; and the corresponding computation sheets are given in Appendix No. 2.
- The 152 cross-sections levelled to the Richelieu, &c., on this stretch of the main line, that is on Section 2, form a total distance of..... 6.9332
- The computation sheets for these short cross-sections on Section 2, have been inserted in Appendix No. 2, in a manner similar to that followed for Section No. 1, as a bove described. The abstract of results showing all the water levels, &c., established in this case, is given in Appendix No. 4.

Carried forward 72.6845

Miles.

Brought over 72·6845

SECTION No. 3.

Section No. 3 extends from the town of Sorel, on the St. Lawrence, at the mouth of the Richelieu, to B.M. 115 above referred to, on an ash stump 190 feet south of the line dividing the parishes of St. Hilaire and St. Charles; it was levelled going in a southerly direction, and has a total length of..... 31·5815

Abstract III, pages 57 to 68, shows the elevations and distances determined and the bench marks established along this last section, and the corresponding computation sheets are to be found in Appendix No. 3.

The 67 cross-sections levelled from the main line to the Richelieu River, in connection with Section No. 3, extend over a distance of..... 4·5643

The additional computation sheets expressly prepared for these short cross-sections, have been inserted in Appendix No. 3; the same order being followed as for Sections Nos. 1 and 2. The corresponding abstract of results is given in Appendix No. 4.

In order to establish the elevations of the seven underground bench marks A, B, C, D, E, F and G, at the bottom of iron wells hereafter described, which were placed after the regular continuous work was completed, additional levelling had to be performed over a distance of..... 1·1107

The steps taken for computing the correct fore and back-sights required to connect these marks with the continuous lines of levels are shown on the following pages of the Appendices, transmitted herewith, viz. :—

Appendix No. 1: pages 11, 44, 69, 110 and 135.

Appendix No. 2: pages 230 and 259.

Appendix No. 3: pages 352, 92, 95, 144 and 184.

The elevations of the underground benches are given in Abstract IV embodied herein.

Total length of lines levelled in connection with the three sections from Lake Champlain to tide water, St. Lawrence, which embrace the whole of the River Richelieu, from Rouses Point to Sorel 109·9419

The datum plane to which all elevations are referred in the following abstracts, has been assumed at a height of 100 feet above the zero of the American Engineer Corps at Fort Montgomery—which is held to correspond with the lowest level of Lake Champlain observed during the season of navigation—with a view to convenience in establishing comparisons, between the results of the present operations, and those arrived at by the United States authorities in levelling from the said lake to tide water at New York.

4	5	0.5117	+	9.8919	+	9.8998	+	9.89585	+	3.95	60.98	B. \odot M. $\frac{5}{5}$	24.3020	88.14470	Parish of St. Johns; top of boundary stone marked $\text{G}-\text{R}$, east side of road.
5	7	0.1176	+	0.1075	+	0.1089	+	0.10820	+	0.70	8.33	B. \odot M. $\frac{7}{7}$	24.1844	88.25290	Lot No. 62, Parish of St. Johns; widow Langelier, proprietor; brass-headed nail in fence post, east side of road.
7	8	0.3355	—	0.7675	—	0.7808	—	0.77415	—	6.65	263.62	B. \odot M. $\frac{8}{8}$	23.8489	87.47875	Lot No. 59, Parish of St. Johns; Crosby Townner, proprietor; brass-headed nail in fence post, east side of road.
8	IV.	0.4911	—	5.4802	—	5.5015	—	5.49085	—	10.65	461.91	B. \odot M. $\frac{IV}{IV}$	23.3578	81.98790	Lot No. 54, Parish of St. Johns; copper plug in gable end, N.E. corner, of Molise Pinsonneault's house, west side of road.
IV.	11	0.6685	—	15.3568	—	15.3325	—	15.34465	—	12.15	442.98	B. \odot M. $\frac{11}{11}$	22.6913	66.64325	Lot No. 47, Parish of St. Johns; Nickles Hebert, proprietor; brass-headed nail in fence post, east side of road.
11	12	0.6738	—	4.6649	—	4.6921	—	4.67850	—	13.60	549.00	B. \odot M. $\frac{12}{12}$	20.0175	61.96475	Lot No. 43, Parish of St. Johns; Henry Monaghan, proprietor; brass-headed nail in fence post of gate, opposite Monaghan's house, east side of road.
12	13	0.6497	+	3.1943	+	3.2055	+	3.19990	+	5.60	96.54	B. \odot M. $\frac{13}{13}$	21.3678	65.16465	Lot No. 34, Parish of St. Johns; Joseph Hebert, proprietor; brass-headed nail in fence post, west side of road.
13	V.	0.5037	+	10.5868	+	10.5825	+	10.58465	+	2.15	18.35	B. \odot M. $\frac{V}{V}$	20.8641	75.74930	Lot No. 28, Parish of St. Johns; widow Lord, proprietor; copper plug in N.E. gable, corner Mrs Lord's stone house, west side of road.
Carried forward		5.2143		—23.9782		—23.9850		—23.98160		—3.40	2191.43				

* All the figures in this column are written in red, to correspond with the totals, etc., for line A on the computation sheets, which are also shown in red, in order to reduce the chances of making errors to a minimum.

I.—ABSTRACT OF RESULTS—Section No. 1, St. Johns to Rouses Point—Continuous Line, *Continued.*

From B.M.	To B.M.	M. Dis- tance.	DIFFERENCE OF HEIGHT.				V. Diff. from Mean.	$\frac{2 V^2}{M}$	B.M., W.S., S.T., &c.	Distance from B.M. 454 at Rouse's Point.	Depth below Datum placed 100 ft. above Low Water Level, Lake Champlain, corresponding to American Engi- neers' 0 at Fort Montgomery.	LOCALITY, ETC.
			LINE A.	LINE B.	Mean.							
			Feet.	Feet.	Feet.	Feet.	$\frac{\text{Feet.}}{1000}$			Miles by line of Levels.	Feet.	
Brought over..		5.2143	-23-9782	-23-9850	-23-98160		-3.40	2191.43				
V	15	0.8017	+9.0292	+9.0179	+9.02355		-5.65	79.62	C. M. B. 15	20.0524	84.77285	Lot No. 19, Parish of St. Johns, Alexis Dubois, proprietor; brass- headed nail on top of balm of Gilead stump, 30 ft. west of west fence along post road.
15	17	1.4737	+5.5559	+5.5636	+5.55975		+3.85	20.12	C. M. B. 17	18.5887	90.33260	Lot No. 137, Parish of St. Valentin, widow Demers, proprietor; brass- headed nail in ash stump, west side of road.
17	18	0.5873	-1.8413	-1.8286	-1.83495		+6.35	137.31	C. M. B. 18	18.0014	88.49765	Lot No. 138, Parish of St. Valentin, Pierre Arbecque, proprietor; brass- headed nail on elm stump, east side of road.
18	VI	0.6556	-3.2757	-3.2646	-3.27015		+5.55	93.96	C. M. B. VI	17.3458	85.22750	Lot No. 132, Parish of St. Valentin, Francois Pinsonneault, owner; copper plug in gable end; S.-W. corner of Pinsonneault's House, east side of road.

VI	19	0-3086	+ 7-4284	+ 7-4351	+ 7-43175	+3-35	73-93	B. 19	C. M. 19	17-0422	92-65925	Lot No. 131, Parish of St. Valentin, François, Pinsonneault, owner; brass-headed nail in post N-W; side of little bridge, foot of road leading to scow landing.
19	20	0-6480	+ 2-1584	+ 2-1588	+ 2-15860	+0-20	0-12	B. 20	C. M. 20	18-3942	94-81785	Lot No. 125, Parish of St. Valentin, François Pinsonneault, owner; brass-headed nail in elm stump in field.
20	21	0-6970	- 1-3080	- 1-2934	- 1-30070	+7-30	178-53	B. 21	C. M. 21	15-7972	93-51715	Lot No. 120, Parish of St. Valentin, David Bisailon, proprietor; brass-headed nail in white oak stump in field, west side of River Richelieu.
21	22	0-6718	+ 2-3542	+ 2-3456	+ 2-34990	-4-30	55-05	B. 22	C. M. 22	15-1254	95-86705	Lot No. 114, Parish of St. Valentin, Pierre Cloutier, proprietor; brass-headed nail in root of soft maple tree, near River Richelieu.
22	VII.	0-0460	+ 0-3524	+ 0-3524	+ 0-35240	.....	.....	B. VII	C. M. VII	15-1714	96-21945	Copper bolt in stone over five feet high, but only about one foot above the surface of the ground, in line of fence in centre of J. Bte. Bornaïs' land.
22	23	0-7466	- 0-4739	- 0-4737	- 0-47380	+0-10	0-03	B. 23	C. M. 23	14-3780	95-39325	Lot No. 108, Parish of St. Valentin, Grégoire Girard, proprietor; brass-headed nail in elm tree, about 50 feet south of River Bleury.
23	24	1-1943	- 2-4164	- 2-4343	- 2-42535	-8-95	134-14	B. 24	C. M. 24	13-1845	92-96790	Lot No. 95, Parish of St. Valentin, Paul Martin, sen., proprietor; brass-headed nail in willow stump, in line between Paul and Fredrick Martin, close to River Richelieu.
24	25	0-6062	+ 1-0184	+ 1-0037	+ 1-01105	-7-35	178-23	B. 25	C. M. 25	12-5783	93-97895	Lot No. 81, Parish of St. Valentin, Toussaint Martin, proprietor; brass-headed nail in hemlock post, planted by Government 40 years ago for use of soldiers, near River Richelieu.
Carried forward.		13-5001	- 5-7490	- 5-7549	- 5-75195	-2-95	3143-47					

I.—ABSTRACT OF RESULTS—Section No. 1, St. Johns to Rouses Point—Continuous Line, Continued.

From B.M.	To B.M.	M. Dis- tance.	DIFFERENCE OF HEIGHT.			V. Diff. from Mean.	$\frac{2V^2}{M}$	B.M., W.S., S.T., &c.	Distance from B.M. 454 at Rouses Point.	Depth below Datum placed 100 ft. above Low Water Level, Lake Champlain, corresponding to American Engin- eers' 0 at Fort Montgomery.	LOCALITY, ETC.
			LINE A.	LINE B.	Mean.						
		Miles.	Feet.	Feet.	Feet.	Feet. 1000			Miles by line of Levels.	Feet.	
Brought over ..		13.5001	— 5.7490	— 5.7549	— 5.75195	— 2.95	3142.47				
25	VIII	0.4313	— 7.0037	— 7.0039	— 7.00380	— 0.10	0.05	C. \odot M. VIII	12.1470	86.97515	Lot No. 87, Parish of St. Valentin, Lucien Gagnon, proprietor; copper plug in stone of foundation of gable end of Boileau's hotel, S.E. corner, west side of road.
VIII	26	0.6730	+ 2.0564	+ 2.0410	+ 2.04870	— 7.70	176.20	C. \odot M. 26	11.4740	89.02385	Lot No. 46, Parish of St. Valentin, François Martin, proprietor; brass- headed nail in pine bridge post, west side of little stream. Name not ascertained.
26	27	0.8759	— 3.6925	— 3.6941	— 3.69330	— 0.80	1.46	C. \odot M. 27	10.5981	85.33055	Lot No. 35, Parish of St. Valentin, Edouard Hébert, proprietor; brass- headed nail in root of elm tree, east side of road.
27	30	1.0500	— 5.3930	— 5.3764	— 5.38470	+ 8.30	131.22	C. \odot M. 30	9.5481	79.94585	Lot No. 22, Parish of St. Valentin, Joseph Nail, proprietor; brass- headed nail, top of N.E. corner post of culvert bridge across gully.

30	31	0.4987	+10.1002	+10.1035	+10.10185	+1.65	10.32	C. B. M. 31	9.0494	90.04770	Lot No. 19, Parish of St. Valentin, Jane Gunn, widow of George Hay, proprietor; brass-headed nail in root of elm tree, near R. Richelieu.
31	33	0.9210	+4.8862	+4.8742	+4.88020	-6.00	78.17	C. B. M. 33	8.1284	94.92790	Lot No. 17, Parish of St. Valentin, Joseph Whitman, proprietor; brass-headed nail in root of elm tree, say 60 feet N. of line between Joseph Whitman and Antoine Gaudreau.
33	34	0.7122	-24.2074	-24.1951	-24.20125	+6.15	106.21	C. B. M. 34	7.4162	70.72665	Lot No. 9, Parish of St. Valentin, William H. Vanvliet, proprietor; brass-headed nail in S.E. side of pine tree, E. side of road.
34	IX	0.2245	-5.6056	-6.6128	-6.60920	-3.60	115.45	C. B. M. IX	7.1917	64.11745	Lot No. 8, Parish of St. Valentin, William H. Vanvliet, proprietor; copper plug in N. face, N.E. corner of Vanvliet's house, W. side of road.
IX	36	1.3547	+9.4043	+9.3726	+9.38845	-15.85	370.89	C. B. M. 36	5.8370	73.50590	Lot No. 1, Parish of St. Valentin, Joseph Bowman, proprietor; brass-headed nail in top of cedar post, west side of road, north side of bridge.
36	39	0.4476	+15.7211	+15.7139	+15.71750	-3.60	57.90	C. B. M. 39	5.3894	89.22340	Lot No. 32, Parish of Lacolle, Charles Joseph Bowman, proprietor; brass-headed nail in west side of elm tree in field, close to R. Richelieu.
39	40	0.8266	+3.5676	+3.5545	+3.56105	-6.55	103.80	C. B. M. 40	4.5628	92.78445	Lot No. 43, Parish of Lacolle, Joseph Martel, proprietor; brass-headed nail in white oak stump, close to R. Richelieu.
40	41	0.9342	+1.8651	+1.8552	+1.86015	-4.95	52.46	C. B. M. 41	3.6286	94.64460	Lot No. 29, Parish of Lacolle, Thomas Brisbane, proprietor; brass-headed nail in root of large elm tree, near R. Richelieu.
Carried forward		22.4498	-5.0503	-5.1223	-5.08630	-36.00	4347.20				

I.—ABSTRACT OF RESULTS—Section No. 1, St. Johns to Rouses Point—Continuous Line, *Continued.*

From B.M.	To B.M.	M. Dis- tance.	DIFFERENCE OF HEIGHT.			V. Diff. from Mean.	$2 \frac{V^2}{M}$	B. M., W. S., ST., &c.	Distance from R. M. 45½ at Rouses Point.	Depth below Datum placed 100 ft. above Low Water Level, Lake Champlain, corresponding to American Engin- eers' 0 at Fort Montgomery.	LOCALITY, Etc.
			LINE A. ←	← LINE B. B.	Mean.						
			Feet.	Feet.	Feet.	Feet. 1000			Miles by line of Levels.	Feet.	
Brought over ..		22.4498	-5.0503	-5.1223	-5.08630	-36.00	4347.20		3.3982	92.89090	Lot No. 42, Parish of Lacolle, Daniel McCallum, proprietor; brass-headed nail in root, E. side of large elm tree, nearly opposite Mr. Brisbane's house, edge of R. Richelieu.
41	42	0.2304	-1.7539	-1.7535	-1.75370	+ 0.20	0.34	C. B. ● M. 42	2.6108	96.20620	Lot No. 19, Parish of Lacolle, John Musson, proprietor; brass-headed nail in root of balm of Gilead tree, close by R. Richelieu.
42	43	0.7874	+3.3261	+3.3045	+3.31530	-10.80	298.27	C. B. ● M. 43	1.8310	93.91960	Lot No. 8, Parish of Lacolle, Mary Collar, widow of Thomas Fraser, owner; brass-headed nail in root, east side of soft maple tree, near R. Richelieu.
43	44	0.7798	-2.2813	-2.2919	-2.28660	- 5.30	72.04	C. B. ● M. 44	1.1200	96.43640	Lot No. 1, Parish of Lacolle, Stephen Oliver, proprietor; brass-headed nail in root, east side of oak tree, near R. Richelieu.
44	45	0.7110	+2.5061	+2.5275	+2.51680	+10.70	322.05	C. B. ● M. 45			

45	X	1·0324	— 0·2877	— 0·2877	— 0·2877	.....	.....	B. $\frac{O}{X}$ M	1·0324	96·72410	Stone planted on Canadian soil with rear face nearly in line with Dominion Boundary Line, opposite site of old barracks. Horizontal chisel mark across copper bolt, 0·5550 foot below top of stone.
45	45½	1·1200	— 1·3553	— 1·3649	— 1·3601	— 4·80	41·14	C. $\frac{O}{45½}$ M.	0·0000	95·07630	Brass-headed nail in fence post about 20 feet from lake, opposite Lovell's printing office, some 800 feet N. of railway track across lower end of Lake Champlain, Rouses Point.
Totals...	.....	26·0784	— 4·6086	— 4·7006	— 4·65460	— 46·00	5079·04				

Mean Error per mile..... = M = 0·00797 foot.
 " whole distance = μ = 0·04055 "

Probable Error per mile..... = 0·6745 \hat{M} = 0·005376 foot.
 " whole distance = 0·6745 $\hat{\mu}$ = 0·02735 "

GEODETIC LEVELLING, LAKE CHAMPLAIN TO TIDE WATER, ST. LAWRENCE.

1½—ABSTRACT OF RESULTS—Levelling from St. Johns, northward, on east side River Richelieu.

From B.M.	To B.M.	M. Dis- tance.	DIFFERENCE OF HEIGHT.			V. Diff. from Mean.	$2V^2$ — M.	B.M., W.S., S.T., &c.	Distance from B.M. 454 at Rouses Point.	Depth below Datum placed 100 ft. above low water level, Lake Champlain, corresponding to American Engin- eers 0 at Fort Montgomery.	LOCALITY, ETC.
			LINE A. ←	LINE B. ←	Mean.						
		Miles.	Feet.	Feet.	Feet.	Feet. 1000			Miles by line of Levels.	Feet.	
III	XI	0.7903	+12.5128	+12.5285	+12.5207	— 7.80	153.9668	C. \odot M. B. \odot III	25.0174	76.0347	Copper bolt in S.-E. corner of Mont- gomery's stone house, N.-W. corner Lemoine and Champlain Streets, St. Johns, P.Q.
XI	47	0.3173	— 0.6250	— 0.6302	— 0.6276	+ 2.60	42.6095	C. \odot M. B. \odot 47	26.1250	87.9278	Copper bolt in S. W. corner of David Frechette's brick store, N.E. corner of Napier and Ste. Anne Streets, St. Athanase or Iberville.
47	XII	0.7211	+ 1.5738	+ 1.5961	+ 1.5844	—11.70	379.6699	C. \odot M. B. \odot XII	26.8461	89.5122	Brassheaded nail on top of fence post on south side of road leading to Jones' Bridge, St. Athanase.
XII	48	0.7363	+10.8603	+10.8568	+10.8586	+ 1.80	8.8007	C. \odot M. B. \odot 43	27.5824	100.3708	Copper bolt in 3 feet thick stone foundation of Geo. Thurston's grist and carding mill, west side of road, St. Athanase.
											Lot No. 58, Raphael Goyette, pro- prietor; brassheaded nail on roof of ash tree at foot of hill, west side of Post Road, St. Athanase.

Post Road, St. Athanasie.

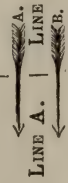
48	49	0.7728	+ 1.8006	+ 1.8093	+ 1.8048	- 4.40	50.1035	C. M. B. 49	28.3552	102.1756	Lot No. 41, Jean Bte. Beauvais, proprietor; brassheaded nail on root of ash tree in field, 9 feet west of road fence, and 15 ft. north of centre of little stream, St. Athanasie.
49	XIII	0.2943	- 4.5263	- 4.5201	- 4.5232	- 3.10	65.3075	C. M. B. XIII	28.6495	97.6524	Lot. No. 36, Damase Beauvais, proprietor; copper bolt in S.W. corner of Beauvais' house, east side of road, St. Athanasie.
Totals.....		3.6321	+ 21.5951	+ 21.6403	+ 21.6177	- 22.60	700.4579				

For Levelling { Mean error per mile..... = M = 0.0071 foot.
from B.M. III. {
to B.M. XIII. { " " whole distance = μ = 0.0135 "

Probable error per mile..... = \hat{M} = 0.6745 M 0.0048 foot.
" " whole distance = $\hat{\mu}$ = 0.6745 μ = 0.0091 "

GEODETIC LEVELLING, LAKE CHAMPLAIN TO TIDE WATER, ST. LAWRENCE.

II.—ABSTRACT OF RESULTS—Section No. 2, St. Johns to St. Hilaire—Continuous Line.

From B. M.	To B. M.	M. Dis- tance.	DIFFERENCE OF HEIGHT.			V. Diff. from Mean.	$2 \frac{V^2}{M}$	B. M., W. S., ST., &c.	Distance from B. M. 45 $\frac{1}{2}$ at Rouses Point.	Depth below Datum placed 100 ft. above Lake Champlain, corresponding to American Engin- eers' 0 at Fort Montgomery.	LOCALITY, ETC.
			LINE A.  LINE B.	Mean.	Feet.						
		Miles.	Feet.	Feet.	Feet.	1000			Miles by line of Levels.	Feet.	
0	50	1.6611	— 1.5877	— 1.5852	— 1.5865	— 1.30	2.0348	B. \odot M. 0	26.0784	99.7309	On large stone imbedded in canal bank, east slope, near water's edge of head race to grist mill; nearly opposite Langelier's swing bridge, Parish of St. Johns.
50	51	0.3457	+ 1.0303	+ 1.0126	+ 1.0215	+ 8.90	458.2586	B. \odot M. 50	27.7395	98.1444	On root of small elm tree, east side of tow-path, opposite Isidore Char- land's south line, St. Johns.
51	XIV	0.6890	— 0.5512	— 0.5578	— 0.5545	+ 3.30	31.6110	B. \odot M. 51	28.0852	99.1659	On root of <i>vinciguier</i> tree, east side of tow-path, opposite N. Depel- teau's farm, St. Johns.
XIV	XV	2.3391	+ 0.6330	+ 0.6533	+ 0.6432	— 10.10	87.2215	B. \odot M. XIV	28.7742	98.6114	Copper bolt in face of stone planted 5 feet into ground, with about 1 foot above it, at head of Grand St. Thé- rèse Island, canal side, St. Johns.
XV	52	0.9778	+ 3.9459	+ 3.9474	+ 3.9467	— 0.70	1.0023	B. \odot M. XV	31.1133	99.2546	Copper bolt in face of stone planted 5 feet into ground, with about 1 foot above it, at foot of Grand St. Thé- rèse Island, canal side, Parish of St. Johns.
XV			+ 3.9459	+ 3.9474	+ 3.9467	— 0.70	1.0023	B. \odot M. 52	32.0911	103.2013	On elm tree, east side of canal, about 120 feet south of south line, Martin Mullarkey's land, Lot No. 345, Parish of Chambly.

52	53	0·8497	+ 1·5691	+ 1·5971	+ 1·00	2·1059	B. ● M. 53	33·0408	104·7694	On ash stump on slope of river bank, opposite Durham's south fence line, Parish of Chambly.
53	XVI	0·2694	— 8·9317	— 8·9·81	— 1·80	2·4050	B. ● M. XVI	33·3102	95·8695	Copper bolt in face of stone, 5 feet in ground and 1 foot above it, opposite L. Fortier's north line, brow of hill, ¼ mile above Yule's grist mill.
XVI	54	0·8553	+ 24·9261	+ 24·9089	+ 8·60	172·9452	B. ● M. 54	34·1655	120·7870	On balm of Gilead tree in field, some distance east of Canal, nearly in line between John Yule and Louis Papineau, Parish of Chambly.
54	55	0·3295	+ 2·6469	+ 2·6518	— 2·40	34·9621	B. ● M. 55	34·4950	123·4364	On ash stump in field, near water's edge R. Richelieu, about 100 feet North of F. Collette's north line fence, Parish of Chambly.
55	XVII	0·4914	— 25·2869	— 25·2771	— 4·90	97·7208	B. ● M. XVII	34·9864	98·1544	Copper bolt in stone 5 feet in ground and 1 foot above it, on east side of Canal, about opposite Jacques Collette's bridge, Parish of Chambly.
55	XVIII	1·6368	— 10·7137	— 10·7162	}		B. ● M. XVIII	36·1318	112·7214	Copper bolt in south face of stone abutment of S.E.R.R. bridge, about 60 feet east of post road, on slope of hill, Parish of Chambly.
57	XVIII	0·1442	— 0·1637	— 0·1662						
XVII	61	2·6132	+ 39·8907	+ 39·8725	+ 9·10	63·3783	B. ● M. 61	37·5996	133·0360	On sawed off may-pole, west of upper end of lock No. 7, and north of post road, Parish of Chambly.
60	XIX	0·4823	— 1·9104	— 1·9123	}		B. ● M. XIX	37·8648	144·4568	Copper bolt in fifth course of stone (from top) lower face of wall of lock No. 7, east side of canal, Parish of Chambly.
61	XIX	0·2652	+ 6·4198	+ 6·4217						
Carried forward		11·5212	+ 38·3145	+ 38·2854	+ 39·3051	953·6455				

II.—ABSTRACT OF RESULTS—Section No. 2, St. Johns to St. Hilaire—Continuous Line, *Continued.*

From B.M.	To B.M.	M. Dis- tance.	DIFFERENCE OF HEIGHT				V. Diff. from Mean.	$\frac{2 V^2}{M}$	B. M., W. S., ST., &c.	Distance from B. M. 45½ at Rouses Point.	Depth below Datum placed 100 ft. above Lake Champlain, corresponding to American Engi- neers' 0 at Fort Montgomery.	LOCALITY, ETC.
			Line A.	Line B.	Mean.	Feet.	Feet from Mean.					
		Miles.	Feet.	Feet.	Feet.	Feet.	1000			Miles by line of Levels.	Feet.	
Brought over...		11·5212	+38·3145	+38·2954	+38·3051	+9·70	953·6455			37·6260	144·5705	Copper bolt in course of stone next to brick, S.W. corner of Canal Toll Collector's office, W. of lower end of lock No. 7, Parish of Chambly.
61	XX	0 0264	+6·5337	+6·5355	+6·5346	.....	.....		C. O. M. B. O. XX			
61	62	0·3722	+18·2054	+18·2065	+18·2060	— ·50	1·3434		C. O. M. B. O. 62	37 9718	156·2420	On poplar stump, south side of road, Charles Allard's property, nearly opposite De Salaberry's monument, Village of Chambly Basin.
62	63	1·1212	+2·3907	+2·3770	+2·3839	+6·90	84·9277		C. O. M. B. O. 63	39·0930	158·6259	On root of elm stump near waters edge, N. side of Little Montreal River, and about 60 feet west of post road bridge on this river, Chambly.
63	XXI	0·1561	— 8·2864	— 8·2965	— 8·2915	.....	.....		C. O. M. B. O. XXI	39·2491	150·3344	Copper bolt in stone, say 3½ feet above ground, N.E. corner of Louis A. Lamoureux's stone house, N. side of road along Little Montreal River, Parish of Chambly.

63	64	0·9739	+	2·5881	+	2·5787	+	2·5834	+	4·70	45·3639	B. \odot M. 64	40·0689	161·2093	On elm tree south side of road, on Salimes Monty's land, lot No. 56, Parish of Chambly.
64	65	1·1128	—	2·6979	—	2·6863	—	2·6921	—	5·80	60·4601	B. \odot M. 65	41·1797	158·5172	Lot No. 40, Alphonse Vinet's property; B.M. on root of elm tree, south side of road, Parish of Chambly.
65	66	0·7341	+	2·8260	+	2·8529	+	2·8395	+	13·40	489·1976	B. \odot M. 66	41·9138	161·3567	Lot No. 31, M ^{me} . Maese's property; B.M. on root of elm stump, east side of road, Parish of Chambly.
66	69	0·7830	+	1·2810	+	1·3041	+	1·2926	+	11·50	337·8083	B. \odot M. 69	42·6968	162·6493	Lot No. 23; B.M. on root of elm tree, east side of road, Parish of Chambly.
69	70	1·5605	—	3·3953	—	3·4291	—	3·4122	—	16·90	366·0493	B. \odot M. 70	44·2573	159·2371	Lot No. 13, Olive Trudeau's land; B.M. on root of elm tree, east side of road, Parish of Chambly.
70	XXII	0·6421	—	6·1571	—	6·1720	—	6·1646	—	7·40	170·5653	B. \odot M. XXII	44·8994	153·0725	Copper bolt in Richard Lamoureux's storey-and-a-half brick house, about 150 ft. west of post road, Parish of Chambly.
XXII	71	1·4840	+	9·8180	+	9·8241	+	9·8211	+	3·00	12·1294	B. \odot M. 71	46·3834	162·8926	Lot No. 8, Hamilton Powder Co., proprietors; B.M. on root of elm tree, east side of road, Parish of Belœil.
71	XXIII	0·9438	—	17·7456	—	17·7322	—	17·7389	—	.....	.....	B. \odot M. XXIII	47·3272	145·1547	Copper bolt in first course of stone above ground, on abutment west side of swing bridge on G.T.R.R. and east side of post road, Parish of Belœil.
Carried forward		20·3050	+	63·1734	+	63·1513	+	63·1627	+	11·40	2521·4925				

II.—ABSTRACT OF RESULTS—Section No. 2, St. Johns to St. Hilaire—Continuous Line, *Continued.*

From B.M.	To B.M.	M. Dis- tance.	DIFFERENCE OF HEIGHT.				V. Dif. from Mean.	$\frac{2 V^2}{M}$	B.M., W.S., ST., &c.	Distance from B.M. 45, at Rouses Point.	Depth below Datum placed 100 ft. above Low Water Level, Lake Champlain, corresponding to American Engin- eers' 0 at Port Montgomery.	Feet.	LOCALITY, &c.
			LINE A.	LINE B.	Mean.	Feet. 1000							
		Miles.	Feet.	Feet.	Feet.					Miles by line of Levels.			
Brought over...		20.3050	+63.1734	+63.1513	+63.1627	+11.40	2531.4905			47.9590	139.5549		Copper bolt in sixth course below top of east abutment, G.T.R.R. bridge, west side of post road, Parish of St. Hilaire.
71	XXIV	1.5756	-23.3393	-23.3381	-23.3387	.....	.....		B. \odot M. XXIV				
71	72	2.5853	+1.4606	+1.4296	+1.4451	+15.50	185.8585		B. \odot M. 72	48.9687	164.3387		Lot No. 98, Azarie Beauchêne's land; B.M. on elm stump, about 75 feet west of road, Parish of St. Hilaire.
72	XXV	0.6422	-20.5275	-20.5244	-20.5260	.....	.....		B. \odot M. XXV	49.6109	143.8127		Copper bolt in S.W. corner of St. Hilaire church, about 2 ft. above ground, Parish of St. Hilaire.
72	73	1.4227	-7.5723	-7.5649	-7.5686	-3.70	19.2451		B. \odot M. 73	50.3914	156.7701		Lot No. 32, Louis Vogel's pro- perty; B.M. on elm stump, east side of road, Parish of St. Hilaire.
73	74	1.1835	-12.4742	-12.4635	-12.4689	-5.40	49.2776		B. \odot M. 74	51.5749	144.3012		Lot No. 20, Miss Lachapelle's pro- perty; B.M. on root of elm tree, east side of road, Parish of St.

GEODETIC LEVELLING, LAKE CHAMPLAIN TO TIDE WATER, ST. LAWRENCE.

III.—ABSTRACT OF RESULTS—Section No. 3, Sorel to St. Hilaire—Continuous Line.

From B.M.	To B.M.	M. Dis- tance.	DIFFERENCE OF HEIGHT.			V. Diff. from Mean.	$2 V^2$ M.	B.M., W.S., S.T., &c.	Distance from B.M. 45½ at Rouses Point.	Depth below Datum placed 100 ft. above Lake Champlain, corresponding to American Engin- eers' 0 at Port Montgomery.	LOCALITY, ETC.
			LINE A. ←	LINE B. ←	Mean.						
			Feet.	Feet.	Feet.	Feet. — 1000			Miles by line of Levels.	Feet.	
XXVI	77	0.5148	-3.6954	-3.6936	-3.6945	-0.90	3.1468	B. \odot M. XXVI	85.3122	152.7150	Copper plug in stone basement of Sorel Market Hall, 21 feet east of S.E. corner, and about 3½ feet above ground.
								C. \odot M. 77	84.7974	149.0305	On root of elm stump opposite Olivier Boucher's brick house, S.E. corner of King and Provincial Streets, Sorel.
77	78	0.1862	-3.1276	-3.1275	-3.1276	-0.10	0.1074	C. \odot M. 78	84.6112	145.8929	Top of boundary stone on property of S.E.R.R., west side of road, Sorel. This stone was already marked w. i. d. on back.
78	79	0.7898	+6.4895	+6.4760	+6.4828	+6.80	117.0929	C. \odot M. 79	83.8214	152.3757	On root of elm tree at intersection of fence, west side of road, with side line between Paul Traversy and James Sheppard, Town of Sorel.

79	81	0 9170	-28-6604	-29 6853	-29-6629	+ 2-40	12 5627	C. M. B. 81	82-9044	122-7128	Lot No 101, Edouard Cournoyer, proprietor; B.M. on root of red pine tree in field on east side and at sharp angle of road, Parish of St Pierre de Sorel.
81	83	1-3693	+11-9213	+11-8882	+11 9047	+16-50	397-6484	C. M. B. 83	81-6351	134-6175	Lot No. 104, Paul Ataya, proprietor; B.M. on root of soft maple stump in field, east side of road, Parish of St. Pierre de Sorel.
83	84	0-3606	- 3-7498	- 3-7624	- 3-7561	+ 6-30	220-1331	C. M. B. 84	81-1745	130 8614	Lot No. 129, Francois Paul, proprietor; B.M. on root of large red pine tree, west side of road, Parish of St. Pierre de Sorel.
84	XXVII	0-4597	- 8-7761	- 8-7802	- 8-7782	.....	.....	C. M. B. XXVII	80-7148	122-0832	Lot No. 4, Pierre Ethier, proprietor; B.M. on copper bolt in centre of north gable of Ethier's brick house, Parish of Ste. Victoire.
84	87	1-8523	+14-2543	+14-2679	+14-2611	- 6-80	49-9271	C. M. B. 87	79-3222	145-1225	Lot No. 26, Pierre Chapdelaine, proprietor; B.M. on root of red pine tree, east side of road, Parish of Ste. Victoire.
87	88	1-2613	- 2-0205	- 2-0007	- 2-0106	- 9-90	155-4110	C. M. B. 88	78-0609	143-1119	Lot No. 1, David Pontbriand, proprietor; B.M. on root of red pine tree, west side of road, Parish of St. Ours.
88	89	0-3460	- 2-7661	- 2-7644	- 2-7652	- 0-80	4-6821	C. M. B. 89	77-7149	140-3467	Lot No. 3, Antoine Larivière, proprietor; B.M. on root of small elm tree, west side of road, Parish of St. Ours.
Carried forward		7-5973	-12-3547	-12-3818	-12-3683	+13-50	960-7115				

III.—ABSTRACT OF RESULTS—Section No. 3, Sorel to St. Hilaire—Continuous Line, *Continued.*

From B.M.	To B.M.	M. Dis- tance.	DIFFERENCE OF HEIGHT.				V. Diff. from Mean.	$2V^2$ — M.	B.M., W.S., S.T., &c.	Distance from B.M. 45½ at Rouses Point.	Depth below datum placed 100 ft. above low water level, Lake Champlain, corresponding to American Engin- eers' 0 at Port Montgomery.	Feet.	LOCALITY, ETC.
			LINE A. ←	← A. B. LINE B.	Mean.								
		Miles.	Feet.	Feet.	Feet.	Feet. — 1000				Miles by line of Levels.			
Brought over..													
89	90	0.7438	-12.3547	-12.3818	-12.3683	+13.50		960.7115	C. B. ● M. 90	76.9711	147.6596	147-6596	Lot No. 14, J. Ete. Chapdelaine, proprietor; B.M. on root of large ash tree, west side of road. Parish of St. Ours.
90	91	0.7961	+11.1054	+11.0978	+11.1016	+3.80		36.2769	C. B. ● M. 91	76.1750	158.7612	158-7612	Lot No. 24, Thomas Arpin, proprie- tor; B.M. on root of large elm tree in field, east side of road. Par- ish of St. Ours.
91	XXVIII	0.3677	-9.4774	-9.4946	-9.4860	.....		.....	C. B. ● M. XXVIII	75.8073	149.2752	149-2752	Lot No. 28, Joseph Dufault, pro- prietor; B.M. on copper plug in N. gable of Dufault's story and half brick house, Parish of St. Ours.
91	92	1.7516	-8.3605	-8.3681	-8.3643	+3.80		16.4877	C. B. ● M. 92	74.4234	150.3969	150-3969	Lot No. 53, Louis Morin, proprie- tor; B.M. on root of large elm tree, east side of road, and opposite Morin's barn, Parish of St. Ours.
91	XXIX	1.3432	-16.3394	-16.3376	-16.3385	.....		.....	C. B. ● M. XXIX	74.8318	142.4227	142-4227	Lot No. 15, Louis Morin, proprie- tor; B.M. on copper plug on N. side of Morin's story and a half brick house, Parish of St. Ours.

92	93	0 4085	— 1 5069	— 1 5049	— 1 5059	— 1 00	4 3859	B. ● M. 93	74 0149	148 8910	Lot No. 62, Mdme. De St. Ours, proprietor; B.M. on root of elm tree, west side of road, Town of St. Ours.
93	XXX	0 4342	— 8 9965	— 8 9961	— 8 9963	— 0 20	0 1842	B. ● M. XXX	73 5807	139 8947	Copper plug in cap of plinth, south side of St. Ours Church, near S.E. corner, Town of St. Ours.
XXX	94	0 6528	+ 32 2219	+ 32 2004	+ 32 2112	+ 10 80	357 3529	B. ● M. 94	72 9279	172 1059	Lot No. 85, Louis Lamoureux, proprietor; B.M. on root of balsam of Gilead tree, west side of road, Parish of St. Ours.
94	95	0 9702	— 3 8225	— 3 8353	— 3 8289	+ 6 40	84 4362	B. ● M. 95	71 9577	168 2770	B.M. opposite lot No. 100, François Grenier, proprietor; on top of mooring post, on E. bank, nearly opposite second lowest ice pier N. of St. Ours lock, Parish of St. Ours.
95	XXXI	0 2835	— 7 3255	— 7 3269	— 7 3262	+ 0 70	3 4567	B. ● M. XXXI	71 6742	160 9508	Copper plug on top of stone coping, east side and upper end of St. Ours lock, Parish of St. Ours.
95	XXXII	0 3084	— 7 9787	— 7 9746	— 7 9757	.....	.....	B. ● M. XXXII	71 6493	160 3013	Copper bolt in stone coping, dam abutment on west side, St. Ours lock island, Parish of St. Ours.
XXXI	96	0 1228	— 18 0151	— 18 0115	— 18 0133	— 1 80	52 7697	B. ● M. 96	71 5514	142 9375	Lot No. 114, Louis Richard, proprietor; B.M. on root of large elm tree, west side of road, Parish of St. Ours.
Carried forward		13 7608	— 9 7538	— 9 8011	— 9 7775	+ 23 60	1930 0152				

III.—ABSTRACT OF RESULTS—Section No. 3, Sorel to St. Hilaire.—Continuous Line, Continued.

From B.M.	To B.M.	M Dis- tance.	DIFFERENCE OF HEIGHT.				V. Diff. from Mean.	$\frac{2V^2}{M}$	B. M., W. S., ST., &c.	Distance from B. M. 457 at Rouses Point.	Depth below Datum placed 100 ft. above Low Water Level, Lake Champlain, corresponding to American English 0 at Fort Montgomery.	Feet.	Miles by line of Levels.	LOCALITY, ETC.
			LINE A.	LINE B.	Mean.									
			Feet.	Feet.	Feet.	Feet.	1000							
Brought over ..		13.7808	— 9.7538	— 9.8011	— 9.7775	— 9.7775	+23.60	1930.0152						
96	97	0.8180	+ 2.3380	+ 2.3515	+ 2.3448	+ 2.3448	— 6.70	109.7558	C. M. B. 97	70.7334	145.2823			Lot No. 128, F. H. Lebeuf, proprietor; B.M. on root of large elm tree, west side of road, Parish of St. Ours.
97	98	1.0400	+ 1.8498	+ 1.8315	+ 1.8407	+ 1.8407	+ 9.20	162.7692	C. M. B. 98	69.6934	147.1230			Lot No. 156A, Edouard Guertin, proprietor; B.M. on root of elm tree, west side of road, Parish of St. Ours.
98	XXXIII	0.7005	— 2.1555	— 2.1574	— 2.1565	— 2.1565	+ 0.90	2.3126	C. M. B. XXXIII	68.9929	144.9665			Lot No. 151, Edouard Plante, proprietor; B.M. on copper plug in N.E. gable of Plante's story-and-a-half brick house, east side of road, Parish of St. Ours.

XXXIII	99	0·5100	+10·2657	+10·2447	+10·2557	+11·00	474 5098	C. B. ● M. 99	68 4829	155·2222	Lot No. 5, Rev. N. Guérout, proprietor; B.M. on oak stump, 4 feet north of large elm tree, west side of road, Parish of St. Denis.
99	101	0·9898	— 5·9323	— 5·9579	— 5·9151	+12·80	327·7454	C. B. ● M. 101	67 4931	149 2771	Lot No. 17, Adolphe Larue, proprietor; B.M. on root of tall ash tree, east side of road, Parish of St. Denis.
101	103	1·1011	+ 2·1023	+ 2·1108	+ 2·1066	— 4·20	32·0407	C. B. ● M. 103	66·3920	151·3837	Lot No. 26, Louis Goulet, proprietor; B.M. on top of large flat stump, east side of road, Parish of St. Denis.
103	XXXIV	0·9982	— 7·5309	— 7·5355	— 7·5332	.....	.....	C. B. ● M. XXXIV	65·3938	143·8505	Copper bolt in N.W. corner of concrete stone wall, east side of road, Parish of St. Denis.
103	XXXV	1·1275	—12·3562	—12·3612	—12·3587	.....	.....	C. B. ● M. XXXV	65·2645	139·0250	Copper bolt in stone, south corner of north tower, front of St. Denis Church, Parish of St. Denis.
103	104	1·5188	— 2·3185	— 2·3106	— 2·3146	— 4·00	21·0692	C. B. ● M. 104	64·8732	149·0691	Lot No. 233, Ludger Gaouette, proprietor; B.M. on root of large elm tree, east side of road, Parish of St. Denis.
104	105	1·4593	+ 2·1006	+ 2·0724	+ 2·0865	+14·10	272·4731	C. B. ● M. 105	63·4139	151·1556	Lot No. 250, Louis Michon, proprietor; B.M. on top of large elm stump, east side of road, Parish of St. Denis.
105	106	0·5179	+ 8·0929	+ 8·0964	+ 8·0947	— 1·70	11·1604	C. B. ● M. 106	62·8960	159·2503	Lot No. 256, J. Marie L'Esperance, proprietor; B.M. on root of white pine tree, west side of road, Parish of St. Denis.
Carried forward			+ 6 5902	+ 6 4803	+ 6 5353	+ 55·00	3343 8514				

III.—ABSTRACT OF RESULTS—Section No. 3, Sorel to St. Hilaire—Continuous Line, *Continued.*

From B.M.	To B.M.	M. Dis- tance.	DIFFERENCE OF HEIGHT.				V. Diff. from Mean.	$\frac{2V^2}{M.}$	B.M., W.S., ST., &c.	Distance from B.M. 4 5/8 at Rouses Point.	Depth below Datum placed 100 ft. above Low Water Level, Lake Champlain, corresponding to American Engin- eers' 0 at Port Montgomery.	LOCALITY, ETC.
			LINE A.	LINE B.	Mean.							
		Miles.	Feet.	Feet.	Feet.	Feet. 1000				Miles by line of Levels.	Feet.	
Brought over..		22.4162	+ 6.5902	+ 6.4803	+ 6.5353	+55.00	3343.8514			61.5370	163.5170	Lot No. 273, Ludger Dauphinot, proprietor; B.M. on root of large ash tree, east side of road, Parish of St. Denis.
106	107	1.3590	+ 4.2680	+ 4.2655	+ 4.2667	+ 1.20	2.1192	C. M. B. 107				
107	XXXVI	0.4130	-12.3633	-12.3654	-12.3644	.....	.....	C. M. B. XXXVI.		61.1240	151.1526	Lot No. 1, Théodule Benoit, pro- prietor; B.M. on copper plug driven into 2nd course of brick above stone foundation, N. gable of dwelling, Parish of St. Charles.
107	108	1.2586	- 1.4922	- 1.4879	- 1.4901	- 2.20	7.6910	C. M. B. 108		60.2784	162.0269	Lot No. 13, Marie Brodeur, pro- prietor; B.M. on top of ash stump, near brow of hill to R. Richelieu, Parish of St. Charles.
108	109	0.9935	+ 3.0894	+ 3.0573	+ 3.0733	+16.00	515.3496	C. M. B. 109		59.2849	185.1002	Lot No. 25, Alexandre Lefebvre, proprietor; B.M. on elm stump, 15 paces south of division line be- tween Charles Bousquet and Alexandre Lefebvre, Parish of St. Charles.

109	xxxvii	1-2136	-17 3321	-17-2609	-17-3461	+ 13-90	318-4080	B. \odot M. XXVii	58-0713	147-7541	Copper plug in stone foundation of St. Charles church, N.W. corner, and about 24 feet above ground, Parish of St. Charles.
XXXVII	110	1-1306	+ 8-9643	+ 8-9534	+ 8-9589	+ 5-50	52-8292	B. \odot M. 110	56-9407	156-7130	Lot No. 103, Antoine Foisay, proprietor; B.M. on root of white pine tree, east side of road, Parish of St. Charles.
110	111	0-6452	- 2-4032	- 2-4111	- 2-4072	+ 3-90	47-1481	B. \odot M. 111	56-2955	154-3058	Lot No. 113, Alexandre Remi, proprietor; B.M. on root of large elm tree, east side of road, Parish of St. Charles.
111	112	0-8811	- 6-9811	- 6-9905	- 6-9858	+ 4-70	50 1419	B. \odot M. 112	55-4144	147-3200	Lot No. 112, J. Bte. Lusignan, proprietor; B.M. on root of large elm tree, west side of road, Parish of St. Charles.
112	114	1-1275	+19-6775	+19-6504	+19-6640	+ 13-60	328-0887	B. \odot M. 114	54-2889	166-9840	Lot No. 128, Alfred Petit, proprietor; B.M. on root of ash tree in gully, along beach, Parish of St. Charles.
114	115	0-5562	- 6-0958	- 6-1005	- 6-0932	+ 7-30	191-6217	B. \odot M. 115	53-7307	160-8908	Lot No. 156, J. Bte. Remi, proprietor; B.M. on ash stump on brow of hill, west side of road, St. Hilaire.
Totals....		31-5815	+ 8-2950	+ 8-0569	+ 8-1758	+118-90	4857-2488				

For { Mean error per mile = $M = 0.0082$ foot.
 Section No 3. { " " whole distance = $\mu = 0.0461$ "

Probable error per mile..... = $\hat{M} = 0.6745 M = 0.0055$ foot.
 " " whole distance = $\hat{\mu} = 0.6745 \mu = 0.0311$ "

For the whole 85-3123 miles of continuous levelling in the three sections between Rouses Point and Sorel, we have:—

Mean error per mile = $M = 0.0079$ foot.
 " " whole distance = $\mu = 0.0733$ "

Probable error per mile... = $\hat{M} = 0.6745 M = 0.0053$ foot.
 " " whole distance = $\hat{\mu} = 0.6745 \mu = 0.0491$ "

GEODETIC LEVELLING, LAKE CHAMPLAIN TO TIDE WATER, ST. LAWRENCE.

IV.—ABSTRACT OF RESULTS—Main Line, Section No. 1, St. Johns to Rouses Point.



Connections with Cross Sections to Bench Walls, A. and B.

From B.M.	To	M. Dis- tance.	DIFFERENCE OF HEIGHT.				B.M., W.S., ST., &c.	Distance from B.M., 45½ at Rouses Point.	Depth below Datum Placed 100 ft. above Low Water Level, Lake Champlain, corresponding to American Engin- eers' 0 at Fort Montgomery.	LOCALITY, ETC.
			LINE A. | LINE B.	Mean.	Feet.	Feet.				
		Miles.	Feet.	Feet.	Feet.	Feet.	Miles by line of Levels.	Feet.		
45	{Cavity on top of bronze cap. WELL A. Top of bronze cap.	0.2572	+2.5855	+2.5788	+2.5822	{Cavity on top of cap. WELL A. Top of cap.	1.1200	96.4364	Lot No. 1, Stephen Oliver, proprie- tor; brass-headed nail in root of oak tree, on its east side, near River Richelieu, Parish of La- colle.	
		0.2576	+2.5484	+2.5440	+2.5462		1.3772 1.3776	99.0186 98.9826		On boundary between United States and Canada, 870 feet east of stone monument, erected by U.S. and English authorities in 1845.
							C. B. ● M. VIII	12.1470	86.9752	Lot No. 87, Lucien Gagnon, pro- prietor; copper bolt in stone foundation of gable end of Boil- eau's Hotel, S.E. corner, west side of road, Parish of St. Val- entin.
							{Cavity on top of cap. WELL B. Top of cap.	12.3155 12.3154	95.7706 95.7497	Opposite N.E. corner of Bison- nette's story and a-half brick house, first house N. of St. Val- entin's church, westside of road, Parish of St. Valentin.
VIII	{Cavity on top of bronze cap. WELL B. Top of bronze cap.	0.1685 0.1684	+8.7861 +8.7767	+8.8047 +8.7727	+8.7954 +8.7747					

IV.—ABSTRACT OF RESULTS—Main Line—Section No. 1, St. Johns to Rouses Point.
Connections with Cross Section to Bench Well, C.

From B.M.	To.	M. Dis- tance.	DIFFERENCE OF HEIGHT.				B.M., W.S., S.T., &c.	Distance from B.M. 454 at Rouses Point.	Depth below Datum placed 100 ft. above Low Water Level, Lake Champlain, corresponding to American Engin- eers' 0 at Fort Montgomery.	LOCALITY, ETC.
			Line A. |	A. Line B. B.	Mean.					
			Feet.	Feet.	Feet.			Miles by line of Levels.	Feet.	
III	Cavity on top of bronze cap. WELL C. Top of bronze cap.	0.2571	+15.0663	+15.0775	+15.0719	Cavity on top of bronze cap. WELL C. Top of cap.	C. M. B. \ominus $\frac{11}{11}$	25.0174	76.0347	Copper bolt in S.E. corner of Mont- gomery's stonehouse, N.W. cor- ner Lemoine and Champlain streets, Town of St. Johns.
		0.2569	+15.0315	+15.0459	+15.0387					
										On top of south bank of ditch around St. Johns barracks, and some 200 feet E. of road leading to barracks from the Town of St. Johns.

IV.—ABSTRACT OF RESULTS—Main Line—Section No. 2, St. Johns to St. Hilaire—
Connections with Cross Section to Bench Well, D.

From B.M.	To	M. Dis- tance.	DIFFERENCE OF HEIGHT.			B.M., W.S., ST., &c.	Distance from B.M. 454 at Rouses Point.	Depth below Datum placed 100 ft. above Low Water Level, Lake Champlain, corresponding to American Engin- eers' 0 at Fort Montgomery.	LOCALITY, Etc.
			LINE A. 	LINE B. 	Mean.				
			Feet.	Feet.	Feet.		Miles by line of Levels.	Feet.	
						C. B. ● M. 61	37.5996	138.0360	Brass-headed nail on top of sawed off old maypole, 5 ft. in ground, about 40 ft. west of Lock No. 7, Chamblly.
{ 61 }	{ Cavity on top of bronze cap. WELL D. Top of bronze cap. }	0.0199	+6.7765	+6.7787	+6.7776	{ Cavity on top of cap. WELL D. Top of cap. }	{ 37.6195 37.6191 }	{ 144.8136 144.7736 }	{ Between B.M. No. 61 and post road, about 45 ft. west of Lock No. 7, on the north side of the post road, Chamblly Basin. }
		0.0195	+6.7370	+6.7382	+6.7376				

IV.—ABSTRACT OF RESULTS—Main Line—Section No. 3, Sorel to St. Hilaire—
Connections with Cross Sections to Bench Wells, F and E.

From B.M.	To	M. Dis- tance.	DIFFERENCE OF HEIGHT.			R.M., W.S., ST., &c.	Distance from B.M. 454 at Rouses Point.	Depth below Datum placed 100 ft. above Low Water Level, corresponding to American Engin- eers' 0 at Fort Montgomery.	LOCALITY, ETC.
			LINE A. | LINE B. ← →	Feet.	Mean.				
		Miles.	Feet.	Feet.	Feet.		Feet.	Feet.	
115	{ Cavity on top of bronze cap. WELL E. Top of bronze cap. }	·0359	—0·4948	—0·4960	—0·4954	C. B. ● M. 115	53·7307	160·8908	Lot No. 156, Jean Bte. Rémi, pro- prietor; on ash stump on brow of hill, west side of road, about 200 ft. south of boundary line between St. Charles and St. Hilaire.
		·0356	—0·5293	—0·5298	—0·5296		53·7666 53·7663	160·3954 160·3612	
XXXII.	{ Cavity on top of bronze cap. WELL F. Top of bronze cap. }	·0367	+3·8530	+3·8561	+3·8546	C. B. ⊙ M. XXXII	71·6493	160·3013	On line between Parishes of St. Charles and St. Hilaire, west side of post road, some 200 ft. south to B.M. 115 on brow of hill, east side R. Richelieu.
		·0367	+3·8215	+3·8236	+3·8226		71·6860 71·6860	164·1559 164·1239	
									Copper bolt in stone coping, dam abutment, west side of island, River Richelieu, at the St. Ours Lock.
									In cut on St. Ours Island, 200 ft. north of dam abutment, and about 150 ft. east of west chan- nel, River Richelieu.

The estimated mean and probable errors, committed by adopting the arithmetical means of the results afforded by the two sets of levellings which are given in the above abstracts, were computed with the aid of the following formulas, viz :—

$$1^{\circ} \text{ Mean error per mile} = M = \sqrt{\frac{1}{2n} \sum \left(\frac{2V^2}{S} \right)},$$

$$2^{\circ} \text{ Probable error per mile} = M' = 0.6745 M,$$

$$3^{\circ} \text{ Mean error for whole distance} = \mu = \sqrt{\frac{\sum (S)}{2n} \sum \left(\frac{2V^2}{S} \right)},$$

$$4^{\circ} \text{ Probable error for whole distance} = \mu = 0.6745 \mu,$$

where S represents the distance between two consecutive bench marks, n the number of distances, and V^2 the square of the difference between the two differences of level obtained by lines A and B and their arithmetical mean.

Formulas similar to the above are used by the United States Coast and Geodetic Survey, and other authorities.

The results arrived at show, as already stated in my first report, that the rule based on experience, which has been laid down in Europe for the guidance of observers, has not been violated; notwithstanding that levels were taken, upon more than one occasion, when high winds prevailed, and that the ground gone over was, in places, so soft and spongy that stakes 4 to 5 feet long had to be driven to secure a proper foundation for the legs of the tripod.

This rule is: that the probable error of a difference in height of two points 1 kilometre apart, should not in general exceed $3^{m,m}$, and never $5^{m,m}$, so that an observer may, in general, accept as a guide for short distances, a discrepancy d between two levellings of the distance K in kilometres, expressed by the formula $d = 5^{m,m}, \sqrt{2K}$.

Adopting the basis that the difference d varies as the square root of the distance, and reverting to the English system of measures, the observer can, according to the said rule, accept for the short distances l between the bench marks: discrepancies $d = 5^{m,m}, \sqrt{\frac{1 \text{ mile}}{1 \text{ kilo}} \times 2l}$ corresponding to nearly 0.03 foot per mile, in the results derived from lines A and B ; but for sections of 25, 50, 100 or more miles, the mean error developed in each mile should not exceed $3^{m,m}, \sqrt{\frac{1 \text{ mile}}{1 \text{ kilo}}} = 0.0126$ foot, or that developed over the whole distance L should not exceed $0.0126 \sqrt{L}$.

The bench marks numbered in Arabic or ordinary figures, are those which were required principally for testing the accuracy of the work, and for resuming the same after temporary suspension of operations. They were generally established on trees and fence posts, into which nails with brass heads (*See* Ill. No. 1) whereon to place

the rods, were driven vertically, and are marked thus $\overset{C.}{B. \bullet M.}$, or simply $\overset{C.}{B. M.}$, in black paint. In some instances the brass-headed nails were driven in horizontally; in such cases the foot of the rod was supported on a small carpenter's level, which was held in a horizontal position, with top flush with a horizontal mark cut across the centre of the brass-headed nail, thus Θ . The benches numbered in Roman numerals are of a more permanent character than the former; they are made generally on the walls of buildings; some, however, on cut stone monuments, specially planted for the purpose.

In order that these might be readily distinguished from other marks, a copper bolt or plug, generally from 3 to $3\frac{1}{2}$ inches long and $\frac{3}{4}$ inch in diameter, was in each case driven into the stone or brick, and a horizontal mark cut across the face of the bolt, whereon the fore and back-sights were taken. These benches are marked

thus $\overset{C.}{B. \ominus M.}$, the letters being sunk into the stone or brick.

In addition to the ordinary bench marks just described, seven principal permanent points of reference, A, B, C, D, E, F , and G were established on the shores of the

Richelieu at depths of from $6\frac{1}{2}$ to $7\frac{1}{2}$ feet in the ground, viz., at the bottom of cast iron tube wells, supported on foundations of hydraulic concrete, from 3 to $3\frac{1}{2}$ feet in diameter and 1 to $1\frac{1}{2}$ feet thick, and effectually protected against disturbance by frost. This work was done at the request of the Department of Railways and Canals, who paid for the wells, including transportation, excavation and planting, for the purpose of securing reliable permanent benches, at every 10 or 15 miles along this international highway of navigation, that could not be easily tampered with or destroyed by parties actuated by vindictive or interested motives, or by school boys impelled in one way or another to do mischief.

A list of the wells considered to be necessary was submitted to Mr. E. H. Parent, the engineer in charge of the works along the Richelieu, under the control of the Department before mentioned. He approved of the locations suggested, as also of the mode of construction proposed to be followed, and made the requisite arrangements to ensure the sinking of the wells at the proper time and place.

In this connection I may be permitted to suggest that it would be in the public interest, for this Department to continue the sinking of such wells at convenient points 15 to 20 miles apart along the remainder of the lines of levels, which are to be run along the St. Lawrence to tidewater below Quebec, etc., or at least in localities where bench marks of the ordinary description are likely to be soon disturbed or destroyed.

By referring to illustration No. III, transmitted herewith, which is a finished copy of the design I prepared in July, 1884, for Mr. Chanteloup, who supplied the wells complete and ready for putting in the ground, their construction will be clearly understood from the following description:—

Each well consists of two distinct cylinders of cast iron, $\frac{1}{2}$ inch to $\frac{3}{4}$ inch thick and respectively 9 feet long by 9 inches in diameter, and $7\frac{1}{2}$ feet long by $12\frac{1}{2}$ inches in diameter inside; of these one is placed concentrically over the other, the flange ring $2\frac{1}{2}$ inches wide at the foot of the outer tube resting on a similar flange $3\frac{3}{4}$ inches wide cast on the inner cylinder, 3 feet above its base. The inner cylinder has a flange circular base 2 feet in diameter and 1 inch thick, into which is screwed an iron tube 3 inches in diameter and 1 foot high, closed at the upper end by a cylindrical bronze or gun-metal cap, with upper edge chamfered off at an angle of $33\frac{1}{2}^{\circ}$ to its vertical axis; all the joints being made perfectly watertight. A hemispherical cavity of the ordinary size is turned in the top base of the cap, to be used as a seat for the base support of the rod to be lowered into the well. The outer tube or shell performs the office of a frost jacket, and stands from $1\frac{1}{2}$ to $2\frac{1}{2}$ feet above the surface of the ground where the well is in its place; the base of the tube being from 5 to $5\frac{1}{2}$ feet below the same level. With a view of facilitating the setting of the outer shell concentrically with the inner cylinder, the lower half foot of the former was flaired out $\frac{1}{2}$ inch, and a ring of lead having a uniform width of $1\frac{1}{2}$ inches, was laid on the supporting flange of the inner tube.

The well is closed by a heavy cast-iron cover, secured in position by four $\frac{1}{2}$ -inch screwed brass bolts, with square heads, passed through four pairs of corresponding lugs on the outer cylinder and the cover; a key of special construction being used to draw the lugs tightly together, by screwing hemispherical nuts on the bolt heads. Padlocks can, of course, be used in place of one or more of the bolts in each well, considered desirable. In addition to this outside cap, another cover also of cast-iron provided with handles for lifting, and having a cylindrical cavity or receiver 2 inches deep on top, for holding anything that might inadvertently fall into the well. On removing the outside cover, is placed on the inner cylinder; the $\frac{3}{4}$ -inch space between the two shells or tubes being closed by a ring of sheet lead fastened to the iron cover which permits of the outer tube having some lateral play, without the inner one being forced to one side or the other.

C.

Each well bears the inscription B. M., with the distinctive letter in larger type underneath—all raised letters—on two opposite sides of the part of the outer cylinder which stands above the ground level; the inside tube is also similarly marked near the base, besides which the distinctive letter is stamped on the cover and the bronze

cap. Before leaving the shop all the wells were painted with three coats of red ochre and filled with water, to make sure of their being perfectly watertight; after being placed in position the parts above ground received another coat of paint.

The sheet iron centreing device, shown on Ill. No. III, was attached to the foot of the rod lowered into the well, in order that the ball might be placed with certainty in the cavity provided in the bronze cap, without having to make tedious trials to find the exact position of the centre; but owing to the strong reflection from the bright newly polished bronze, this proved to be a superfluous precaution in nearly every case.

It is my intention to have the correct elevation of the top of the gun metal cap, together with the date of the planting of the well, painted in white around the inner face of the outside tube, in the space between the two covers.

In August, 1883, a gauge divided, as usual, into feet and tenths, numbered from 0 upwards, was bolted to the wall on the west side of the guard lock (No. 1) of the Chambly Canal at St. Johns, above the upper gates, viz., in the recess for stop logs; this 0 being placed, at the suggestion of the lockmaster, 1 foot above the lock bottom and 106.94 feet below datum, with the intention of showing at a glance the depth of water on the upper mitre sill. Later on, however, it was discovered that this gauge was fixed at a level too high by 0.28 foot, to indicate the said depth correctly. (See foot notes at page 177.) A second gauge similar to the above was planted in the river proper opposite lock No. 1, on the 4th September following, with its 0 placed 5.3419 feet above that of the first gauge, viz., at an elevation of 101.5981 feet below datum. These two gauges were read by the lockmaster, one immediately after the other, up to the 1st November, 1883.

It was found, as apprehended, that on account of the variable supply admitted into the canal, the rapid rising and sinking of the water above St. Johns, caused by winds and the swells raised by the vessels passing up and down: the relative elevations of the water surface near the guard lock, which is over half a mile below the upper end of the entrance channel, and of the Richelieu River proper are not always the same, and that the difference amounts sometimes to several tenths of a foot. The indications of this river gauge were therefore preferably used for the reduction of the water levels, notwithstanding that the water surface appeared to be generally smoother in the canal entrance channel than in the river.

The variations in the height of the water were also observed and recorded, in 1883, at Philipsburg, Missisquoi Bay, Lake Champlain; viz., from 16th August to 1st November; the depth of the surface below the top of a piece of timber in the ruins of the upper wharf being measured with a tape line.

In 1884 six gauge registers were kept regularly from 1st July to 1st November, indicating the fluctuations of the river level at the following points:—

- (a) Head of upper or southern entrance to Chambly Canal, at St. Johns.
- (b) Foot of Chambly Canal at Chambly Basin.
- (c) Beloeil booms, 175 feet above Grand Trunk Railway bridge.
- (d) Above St. Ours lock and dam.
- (e) Below St. Ours lock and dam.
- (f) Mouth of River Richelieu, opposite the town of Sorel.

With a view of obtaining the surface declivity of the river during the spring floods, the elevation of the water was again regularly observed and recorded at the points just described, and also at Rouses Point, between 21st April and 21st June, 1885. The observations were, as a rule, made three times each day, viz.: between 7 and 8 a.m., 12 and 1 p.m., and 5:30 and 6:30 p.m.; the state of the weather and river, and the approximate direction and force of the wind being noted.

I have been informed at Fort Montgomery, which is situated at the outlet of the Richelieu from Lake Champlain, in the State of New York, that the height of the water and state of the weather and wind, have been observed there for the last 16 years once every day at about 5 or 6 p. m., by the caretakers placed in charge of the

fort; the records of these observations are kept in the United States Engineer's Office at Oswego, N.Y. The elevations of the water surface are here referred to the 0 or low water plane adopted by the United States engineers; this 0, as pointed out to me in 1883 by Mr. Wm McComb the then keeper of the fort, is 1.5 feet below the top of a projecting course of stone at the base of the fort walls, on the southern or lake side.

According to the water registers that have been kept by the lockmasters at St. Johns, Chambly Basin and St. Ours, the highest and lowest elevations attained at these points by the River Richelieu, in the years 1855-85, are as shown in the following table of the greatest and least depths measured on the mitre and mud sills, &c.

YEAR.	ST. OURS.				CHAMBLY BASIN.		ST. JOHNS.	
	Lower mitre sill, west side of lock.		(1) Mud sill, west side, above lock.		Lower mitre sill, lock No. 3, west side, Chambly Canal.		(2) Upper mitre sill, lock No. 1, west side, Chambly Canal.	
	Greatest depth measured.	Least depth measured.	Greatest depth measured.	Least depth measured.	Greatest depth measured.	Least depth measured.	Greatest depth measured.	Least depth measured.
	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
1855.....	April	Sept.						
	19.58	8.50						
1856.....	April	Nov.						
	16.00	8.41						
1857.....	April	Oct.						
	21.58	9.25						
1858.....	April	Nov.						
	17.75	9.08						
1859.....	March	Sept.						
	22.33	8.37						
1860.....	March	Sept.						
	15.92	8.58						
1861.....	April	Sept.						
	21.66	9.12						
1862.....	April	Oct.						
	24.83	8.92						
1863.....	April	Sept.						Oct.
	23.92	8.83						8.42
1864.....	May	Sept.					May	Sept.
	18.42	8.17					11.30	7.17
1865.....	March	Nov.					April	Nov.
	24.75	7.08					11.67	6.50
1866.....	April	Oct.					April	Aug.
	18.75	9.08					10.50	8.08
1867.....	April	Nov.					May	
	22.42	7.58					12.75	
1868.....	March	Oct.	May.	Oct.	May	Oct.	July	Sept.
	16.83	7.00	12.75	8.75	14.50	7.83	11.58	7.08
1869.....	April	Sept.	April	Sept.	April	Sept.	April	Sept.
	23.33	9.83	19.75	8.17	23.67	9.33	13.87	8.20
1870.....	April	Sept.	April	Sept.	April	Oct.	April	Oct.
	20.83	7.75	16.83	7.42	19.67	7.33	12.67	7.00
1871.....	March	Nov.	March	Nov.	March	Nov.	April	Nov.
	19.92	7.33	15.17	7.75	19.00	7.75	10.80	7.33
1872.....	April	Aug.	April	Dec.	April	Jan.	May	April
	18.50	8.83	14.42	8.66	19.50	9.75	11.58	7.58
1873.....	April	Sept.	April	Oct.	April	Sept.	April	Oct.
	24.00	7.58	19.83	7.42	23.50	7.08	12.50	8.08
1874.....	March	Dec.	March	Dec.	Feb.	Dec.	May	Nov.
	18.33	7.17	13.75	7.17	20.50	7.33	11.75	7.17
1875.....	April	Sept.	April	Sept.	April	Sept.	May	Sept.
	18.75	7.75	14.58	7.83	18.25	8.50	11.50	7.33

YEAR.	ST. OURS.				CHAMBLY BASIN.		ST. JOHNS.	
	Lower mitre sill, west side of lock.		(1) Mud sill, west side, above lock.		Lower mitre sill, lock No. 9, west side, Chamby Canal.		(2) Upper mitre sill, lock No 1, west side, Chamby Canal.	
	Greatest depth measured.	Least depth measured.	Greatest depth measured.	Least depth measured.	Greatest depth measured.	Least depth measured.	Greatest depth measured.	Least depth measured.
	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.
876.....	April 22-83	Sept. 7-75	April 18-33	Dec. 7-33	April 19-75	Dec. 7-25	May 12-67	Dec. 7-00
377.....	April 19-75	Sept. 7-25	April 15-67	Oct. 7-83	April 17-83	Sept. 8-00	April 10-67	Oct. 7-50
378.....	May 14-75	Oct. 8-42	May 12-33	Oct. 7-92	April 16-58	Nov. 8-58	April 11-42	Oct. 7-33
379.....	April 20-25	Oct. & Nov. 6-25	April 16-00	Nov. 6-92	April 18-67	Nov. 7-17	Nov. 12-25	Oct. 6-67
380.....	April 19-00	Oct. 6-92	April 14-67	Sept. 7-25	Feb. 17-67	Oct. 7-33	April 10-75	Oct. 6-33
381.....	March 17-00	Oct. 6-42	March 13-75	Oct. 8-12	March 17-00	Oct. 8-33	May 10-83	Oct. 6-83
382.....	March 16-83	Dec. 7-50	March 13-83	Dec. 7-75	March 16-50	Dec. 8-25	March 10-50	Nov. & Dec. 7-00
383.....	April 22-25	Sept. 8-00	April 18-08	Oct. 7-83	April 20-17	Dec. 8-08	April 11-67	Dec. 6-17
384.....	April 23-00	Oct. 7-75	April 18-50	Oct. 7-63	March 20-83	Oct. 7-53	May 12-42	Oct. 6-60
385.....	April 23-63	.....	April 19-64	.....	April 21-08	.....	April 12-32	.....

N.B. (1)—On the upper side of the St. Ours Lock the depths have been measured from the mud sill instead of the lock sill; this mud sill is $1\frac{1}{2}$ inches = 0.14 foot lower than the lock sill.

(2). At St. Johns the lockmaster always measures the depth of the water above the lock, at a point in the groove cut in the face of the west wall for holding stop logs; he refers each measurement to the mitre sill level, by counting from a mark made one foot above the lower end of his measuring pole. It has been found, however, that now, probably owing to some displacement of the foundation members, the lock bottom in the vicinity of the spot where the depths are taken, is only from 0.7 to 0.8 ft below the top of the mitre sill, instead of one foot; no doubt, if the lockmaster's point of reference was absolutely fixed, something would be gained as regards precision. On account of the rapid fluctuations in the river level produced by winds, the depths measured at the St. Johns guard lock, do not always indicate the correct elevations of the Richelieu at the upper end of the Chamby Canal. (See marks, page 175 of this report.) The least depth recorded at Sorel by M. H. C., gauge keeper, Nov., 1879, was 18.75 feet.

It will be seen from the foregoing statement, that the Richelieu reaches its lowest stage, as a rule, in the fall of the year, and that the least depths measured and recorded by the lockmasters, &c., are:—

At St. Johns, 6.17 feet in December, 1883.

At Chamby, 7.08 feet in September, 1873.

At St. Ours (above lock) 6.92 feet in November, 1879.

At St. Ours (below lock) 6.25 feet in October and November, 1879.

At Sorel, 18.75 feet in November, 1879, as per Montreal Harbour Commissioners' gauge register.

The low water level shown on the accompanying illustrations, Nos. IV, V, VI, which is marked extreme low water, does not quite agree with the lowest depths in the foregoing table, partly on account of some inaccuracies having been discovered in the Chamby Basin lockmaster's register; and partly because, as will be shown hereafter, the depths recorded by the lockmaster at St. Johns do not always indicate the actual fluctuations of the river opposite that town, especially in the fall of the year.

The extreme low water indicated on the profiles is based upon the observed low stages of the river, when its surface fell:—

At St. Johns to 101·34 feet below datum, close to the north face of the C. V. R. R. bridge, viz., on 21st October, 1833; standing but 5·88 feet over the mitre sill at the upper end of lock No. 1, on its west side.

At St. Ours, above the lock and dam, to 174·85 feet, viz., on 4th November, 1879. This elevation of 174·85 feet, corresponds to a depth of 6·92 feet on the west end of the mud sill placed about 36 feet to the southward of the upper mitre sill of this lock.

At Chambly Basin to 174·10 feet. This elevation, which corresponds to a depth of 6·96 feet over the mitre sill of lock No. 9, was arrived at by allowing the declivity of 0·76 foot to obtain from Chambly to St. Ours—in the case of the extreme low stage of the water, at 174·85 feet, just described, when there are 6·92 feet on the mud sill above the St. Ours lock—the same as for normal low water.

At St. Ours, below the lock and dam, to 180·16 feet. This level corresponds to a depth of 6·25 feet on the lower mitre sill.

At Sorel, to 180·37 feet. This level corresponds to a height of 18·75 feet above the 0 of the Montreal Harbour Commissioners' gauge.

In the spring of the year the Richelieu, like all rivers in this country, is at its highest. The greatest depths measured and recorded by the lockmasters since 1868, are,

At St. Johns.....	13·87 feet in April, 1869.
At Chambly Basin.....	23·67 do 1869.
At St. Ours, above the lock	19·83 do 1873.
At St. Ours, below the lock	24·00 do 1873.

It will be noticed, however, that at St. Ours below the lock, a greater depth than the maximum of 24·00 feet just quoted, was recorded in April, 1862, viz., 24·83 feet; furthermore, the spot pointed out to me by Mr. Levi Larue—the painstaking superintendent of the St. Ours works, to whom I am much indebted for useful information—as the highest reached by the water in 1865, when it invaded his residence, is at a greater elevation yet than the river level of 1862 just referred to; being 26 feet above the lower mitre sill of the lock. This great rise was caused principally by back water from the St. Lawrence, which river rose at Sorel, according to information kindly furnished by John McCarthy, Esq., approximately to 37·9 feet above the 0 of the Montreal Harbour Commissioners' gauge.

In the absence of entirely satisfactory information, respecting the state of the river as regards the blocking up of parts of the channel by ice, and the exact time of day and manner of measuring the depths on the lock and mud sills in 1865, 1869 and 1873, and for the want of corresponding measurements made simultaneously at other points along the river, it was deemed advisable to show on the profiles only the extreme high water level observed in 1885, by a full line; the position of the corresponding levels in 1865 and 1869, just referred to, are indicated approximately by dotted lines.

In 1885 the Richelieu reached its highest and lowest levels, in each case practically on the same day and at the same hour, at all points on the reach between the St. Ours dam and Chambly Basin, and the same may be said of the reach between St. Johns and Rouses Point; but the times on this stretch were found to be from 18 to 24 hours in advance of those on the lower one.

As regards the stretch from St. Ours dam to the mouth of the river at Sorel, it must be stated that the maximum height of the water was observed at Sorel at 1 p.m. on 26th April, 1885; while at St. Ours the Richelieu reached its greatest height only on the following day at 7 a.m. In order to avoid a confusion of lines on the profiles, a mean high water line was here shown, which corresponds to an intermediate stage between those observed on the 26th and 27th April, just referred to. In 1885 the water reached its lowest stage on this lower reach simultaneously at Sorel and St. Ours, viz., on 19th September, at 7 a.m.; the elevation of the Richelieu being here principally governed at low water by the fluctuations of the St. Lawrence, the lowest level obtains, no doubt, nearly at the same time at both ends every year.

At the gauging stations the elevations of the high water level of 1885, as shown, are as follows:—

At Rouses Point, Turner's Wharf.....	92.97 ft. below datum.
At St. Johns, lower side C.V.R.R. bridge near Chambly Canal entrance channel corresponding to 12.56 feet, or 12 feet 6½ inches on the mitre sill of lock No. 1.	94.65 " " "
At Chambly Basin.....	159.96 " " "
corresponding to 21.09 feet or 21 feet 1 inch, on mitre sill of lock No 9, west side.	
At Belœil boom pier close to west shore, 175 feet south of G. T. R. R. bridge	159.96 " " "
At St. Ours, above dam.....	162.24 " " "
corresponding to 19.53 feet, or 19 feet 6½ inches nearly, on the mud sill above the lock, and to 19.39 feet on the mitre sill.	
At St. Ours, below the lock.....	162.75 " " "
corresponding to 23 feet 8 inches on the lower mitre sill.	
At Sorel	163.57 " " "
corresponding to 35.55 feet above the 0 of the Montreal Harbor Commission- ers' gauge.	

The total length of the Richelieu is 82 miles, from Lake Champlain at Rouses Point, to the St. Lawrence. Its total fall is:—

	Below Datum.			
At extreme low water.....	79.41 ft., viz.,	from 100.96 ft. to 180.37 ft.		
At the lowest normal level hereinafter defined.....	79.62 " " "	100.00 do	179.62 ft.	
At extreme high water, as observed in 1885.....	70.60 " " "	92.97 do	163.37 ft.	
At extreme high water, as observed in 1865.....	66.15 " " "	94.00 do	160.15 ft.	

Taking the fall at 79 feet at ordinary low water, the mean declivity of the whole river is at that stage, 0.9634 foot per mile.

The total fall of the water from the lower end of the St. Ours lock to the mouth of the river at Sorel, a distance of 13.80 miles, may be said to vary between 0.2 foot at extreme low water and 1 foot at extreme high water, and hence the declivity from 0.0145 foot to 0.0725 foot per mile.

The elevation of the lower mitre sill of the St. Ours lock is 186.4121 feet, on the west side; that of the upper mitre sill on the same side: 181.6296 feet, and the crest of the dam stands in the centre: 174.03 feet below datum.

Although the fall created by this dam is sometimes all but obliterated in the spring by the backwater which enters the Richelieu from the St. Lawrence, the downward or northward current is always very strong at that season.

Mr. Larue says, he never observed the current running up over the St. Ours dam towards Chambly. It appears, however, from an inspection of the water registers kept by him with great regularity since 1868, above and below the St. Ours lock, that possibly, owing to the partial blocking by ice of the bed of the River St. Lawrence below Sorel, its waters occasionally rise in winter, to a higher level at the mouth of the Richelieu, than those which find their way down this stream attain on the upper or south side of the dam. This was the case on the 23th February, 1871, when the water stood at 172.19 feet below datum and 9 feet 7 inches deep over the mud sill at the upper end of the lock, and but 171.74 feet below datum, with 14 feet

8 inches over the lower lock sill, which indicates a fall of 0.45 foot from the lower towards the upper sill and an upward current over the crest of the dam, which, as just stated, is 174.03 feet below datum at its highest point.

The greatest drop on record from the reach above the St. Ours dam to that below it, is that which obtained on the 27th October, 1879, being 5.97 feet. The elevation of the upper surface was on that day 174.19 feet, corresponding to a depth of 7 feet 7 inches on the upper mud sill, and that of the lower surface 180.16 feet, corresponding to 6.25 feet of water on the lower mitre sill, the minimum depth recorded; the annual minimum fall in the spring varies here from about 0.2 foot to 2.0 feet.

The average height of the fall for each month of the year 1884 is found to be as follows:—

	Feet.		Feet.
January	0.8243	July	4.0470
February	0.6375	August	4.2602
March	1.1116	September	4.6878
April	0.8054	October ...	4.5464
May	1.4984	November	4.0846
June	3.4694	December	3.3256
Mean height of fall for the whole year 1884.....			2.7748
Mean height of fall for the season of navigation, from 1st May to 1st December, 1884.....			3.7991

A portion of the fluctuations in the declivity and elevation of the water surface, which take place between Sorel and St. Ours, is due to the influence of the tide waves from the Atlantic which make themselves felt up as far as Lake St. Peter and beyond, for a short time before and after full and new moon. That this is the case, notwithstanding the fact of the city of Three Rivers being generally represented, as situated on the north shore of the St. Lawrence, at the head of tidal water, is clearly shown by the subjoined series of accurate half-hourly measurements made at Sorel on the 16th, 17th, 18th and 19th of October last, with the points attached to the levelling rods, and also by the succeeding table of maximum weekly fluctuations of the water level opposite the same town.

Hour.	Depth of water surface below nail on stake spiked to north-east face of city wharf, foot of King Street, Sorel, 1884.				Remarks.
	October 16.	October 17.	October 18.	October 19.	
A.M.	Feet.	Feet.	Feet.	Feet.	
7.30	.....	0 613	0 411	.....	New moon on 18th October, at 7.14 p.m.
8.00	.....	0 620	0 419	*0 300	
8.30	.....	0 626	0 423	.....
9.00	*0 680	0 638	0 427	.....	The highest and lowest elevations of the water surfaces are indicated by *
9.30	0 670	0 643	*0 437	0 324	
10.00	0 670	*0 648	0 432	0 327	
10.30	0 667	0 645	0 425	0 344	
11.00	0 663	0 639	0 426	0 363	
11.30	0 646	0 620	0 407	0 380	Water surface quite smooth all day on 16th, 18th and 19th, and on the 17th up to 10 am.
12.00	0 635	0 600	0 400	0 389	
P.M.					
12.30	0 620	0 600	0 351	0 400	
1.00	0 613	0 598	0 315	0 400	
1.30	0 598	0 542	0 271	*0 409	
2.00	0 595	0 558	0 273	0 399	
2.30	*0 593	0 543	*0 265	0 377	
3.00	0 600	*0 537	0 279	.....
3.30	0 610	0 541	0 295	.....
4.00	0 604	0 543	0 308	.....
4.30	0 601	0 539	0 288	.....
5.00	0 600	.....	0 281	.....	Water too rough for measuring correctly on 17th at 5 p.m.
5.30	0 620	0 544	0 287	.....

TABLE of maximum fluctuations of the water level at Sorel, for eight successive semi-lunations in 1884, exhibiting aggregate combined influence of tides and River St. Lawrence on Lake St. Peter.

Months and phases of the Moon, 1884.	Elevation of water surface below zero, per gauge at McCarthy's wharf at Sorel.	Rise+ Fall— of Lake St. Peter.	Remarks.
	Feet.	Feet.	
June ☉.....	3.10	.....	Depth of water on sill of old lock No. 1, foot of Lachine Canal=19' 6".
July ○.....	2.60	+0.50	
" ☉.....	3.30	-0.70	
" ☉.....	2.80	+0.50	
" ☉.....	3.70	-0.90	
Aug. ○.....	2.70	+1.00	
" ☉.....	3.60	-0.90	
" ☉.....	3.70	-0.10	
" ☉.....	4.55	-0.85	
Sept. ○.....	4.05	+0.50	
" ☉.....	4.85	-0.80	
" ☉.....	4.50	+0.35	
" ☉.....	5.15	-0.65	
Oct. ○.....	4.10	+1.05	
" ☉.....	4.80	-0.70	
" ☉.....	4.35	+0.45	Depth of water on sill of old lock No. 1, foot of Lachine Canal=17' 7".
" ☉.....	4.75	-0.40	
		-1.70	

From the last quarter, at the end of June, to that at the end of October, the total fall of Lake St. Peter was $(4.75 - 3.10) = 1.65$ feet, which agrees very well with -1.70 the sum of rises and falls observed at Sorel. During the same time the total fall of the St. Lawrence at the foot of the Lachine Canal was, according to the lockmaster's register, from $19'-6"$ to $17'-7" = 1'-11" = 1.92$ feet.

All the water levels determined between Rouses Point and Sorel have been reduced to the low stage of the rivers Richelieu and St. Lawrence, during which the water surface stands, in calm weather, at the 0 established by the United States engineers at Fort Montgomery, viz., 100 feet below datum, and at Sorel 19.5 feet above the 0 of the Montreal Harbour Commissioners' gauge, or 179.62 feet below datum, corresponding approximately to 10½ feet depth on the Lake St. Peter flats, and to 5.93 feet below the 0 of the gauge put up by me in July, 1884, on the north side of McCarthy's wharf. This low stage is designated herein, and also on the plans transmitted, as the lowest normal or standard water level or plane.

The observations made at St. Johns and Philipsburg, simultaneously in 1883, go to show that at low stages of the water, the surface level varies in calm weather nearly in a uniform manner, both in the River Richelieu, above the said town of St. Johns and in Lake Champlain. Thus, from the 10th to the 14th September, 1883, when there was no wind to speak of, the water stood at St. Johns at a nearly constant elevation of 1.22 feet per river gauge, and at Philipsburg 2.37 feet below the 0 point: a brass headed nail driven into the top timber of the wharf, which was used as a point of reference for the gaugings.

Again, on the 25th October following, also a calm day, on which the water reached its lowest level in 1883, the corresponding elevations of the river and lake were respectively: 0.62 foot and 2.95 feet; the surface having fallen at each place 0.60 foot, nearly, below the level of 10th to 14th September. The surface declivity from Fort Montgomery and the International Boundary Line to St. Johns may, therefore, under such circumstances, be considered to be practically invariable, say within 1 foot or so of the lowest level which obtains during the season of navigation.

Now, on the 13th October, 1883, when there was little or no wind, the water stood 0.3381 foot over the said 0 at Fort Montgomery, and again on the 25th October following, when, as already stated, the river level was the lowest observed during calm weather in 1883-84, the water stood 0.055 foot above the 0 at the United States fort, and 0.6169 foot above the 0 of the gauge planted in the river opposite the St. Johns lock (No. 1) in 1883. The standard or lowest normal water level may therefore be considered to be, at Philipsburg: 3 feet below the 0 point on the top of the wharf timber just referred to, and at St. Johns, opposite lock No. 1: 0.5619 foot above the 0 of the river gauge of 1883.

And when the river surface is, in calm weather, 0.5619 foot above the 0 of the river gauge of 1883, the said surface stands, at the upper end of the entrance channel to the Chambly Canal: 5.48 feet below the 0 of the gauge spiked in June, 1884, to Bissett's wharf, say 400 feet north of the Vermont Central Railway bridge; being at an elevation of 100.3818 feet below datum, which corresponds to a depth of 6.84 feet on the upper mitre sill of lock No. 1, west side; provided always, that the sluice gates are closed, so as to keep the water in perfect equilibrium in the said entrance channel.

Judging by the fluctuations of the river observed 1st July to 1st November, 1884, the lowest normal water level may be assumed to stand:—

(a) At Chambly Basin: 5.77 feet below the 0 of the Chambly gauge of 1884, corresponding nearly to 7 feet 7 inches, or 7.57 feet depth on the lower mitre sill of lock No. 9, at the foot of the Chambly Canal, and to an elevation of 173.48 feet below datum.

(b) At Belœil, above the Grand Trunk Railway: 7.74 feet below the 0 of the gauge of 1884, or 28.46 feet below the $\overset{C}{B \ominus M}$ on the abutment at the west side of the swing bridge, and 173.61 feet below datum.

(c) At St. Ours, above the dam: 4.86 feet below the 0 of the gauge placed in the southern entrance to the lock, corresponding nearly to 7 feet 6½ inches, or 7.53 feet depth on the mud sill above the lock, and 174.24 feet below datum.

(d) At St. Ours, below the lock: 5.52 feet below the 0 of the gauge in the northern entrance, corresponding to 7 feet 1 inch, or 7.08 feet on the lower mitre sill, and to an elevation of 179.33 feet below datum.

The declivity of the water surface, which is very small between Lake Champlain and St. Johns; Chambly Basin and the St. Ours dam, and the towns of St. Ours and Sorel, was determined between these points, by means of several series of *quasi* simultaneous observations made by five or six observers on nearly calm days; each set of observations being connected and compared with the preceding set at one or more points.

The simultaneous observations between St. Johns and Rouses Point were made between 8th September and 17th October, 1883; during this interval the elevation of Lake Champlain decreased but 0.57 foot, the waters being depressed from 0.94 foot down to 0.37 foot above the normal low water level, and the river fell only 0.40 foot, viz., from 0.64 foot to 0.24 foot above the said normal level. In the reduction of the water levels determined between these places to this normal level as indicated on illustration No. IV, the declivity has therefore been assumed to have remained constantly the same during the time referred to.

To determine approximately the profile of the permanent stream at normal low water, between St. Johns and the foot of the Chambly Rapids, as shown on illustration No. V, the lowest elevations which it was found convenient to take in the season of 1884 were reduced in each case, in the ratio of the sinking of the water from the next higher level observed, to the corresponding depression indicated by the record of the gaugings made at the upper end of the entrance to the Chambly Canal. On account of the rugged nature and irregular rapid descent of the river bed, the variations in the water levels are also very irregular on this stretch, in comparison to the corresponding fluctuations in the volume of water carried by the Richelieu.

Between the gauging stations of Chambly Basin, Belœil and St. Ours (above the lock), the lowest series of elevations of the surface of the water, determined during calm weather in 1884, were reduced to the normal low water level above defined, by allowing at every place of observation, for the further depression of the river indicated by the gauge record of the nearest gauging station above, in the ratio of the distance of such place from the nearest gauging station below it to the whole space between these stations, and *vice versa*.

Below St. Ours the water surface is always in an unsettled condition, not only on account of the irregular and uncertain tidal fluctuations at the mouth of the river, but also owing to the great variations in the volume of water passing out of the reach between St. Ours and Chambly for locking purposes, and through the crevices in the lower part of the dam—which are filled up, more or less effectually, every year with gravel thrown against the upstream side of the work—in addition to the water which finds its way over the crest of the dam and the fish-ladders, 22 feet wide by 18 inches high, provided on both sides.

The dam was built in 1846–49, and became partly dislocated soon after its completion, owing to settlement taking place at both ends. The outer cribs sunk are supported on a clayey foundation, while those in the centre rest on a sandy bottom. The summit being, on account of subsidence of cribwork, some 18 inches lower at the east and 19 inches lower at the west end than in the centre, the work was raised at the sides to about its original height, a few years ago, by means of two planks, supported on the lower side by knee-brackets bolted to the apron; with the object of slightly raising the water, to improve the navigation at low water, over the shoals at St. Denis, &c.; the crest now again follows a tolerably level line.

As a basis for the reduction of the water levels established on the lower reach to the normal low water level, it has been assumed that the river rises and falls on the whole stretch from Sorel to St. Ours, in a corresponding manner with Lake St. Peter, independently of the fluctuations caused here by the variations in the discharge of the Richelieu at the St. Ours dam. These fluctuations have been allowed for separately, viz., at each point of observation: in the ratio of the whole distance between the St. Ours lock and the mouth of the river, to the distance of such point from Sorel.

The normal low water level, after being determined, as above explained, was plotted on section paper to a horizontal scale of 1 mile per inch and a vertical scale of $\frac{1}{10}$ foot per inch, and a compensation water line drawn, with a view of eliminating

as much as possible, the errors due to the small undulations of the river surface, produced by winds, passenger steamers, tow-boats, &c. ; as well as all unavoidable fortuitous errors of levelling, &c. The maximum deviation of the computed low water line, from the corresponding compensation line, was, in spite of all the precautions taken, as high as 0.1 foot, but the mean deviation did not exceed 0.02 foot.

In putting the extreme high and extreme low water lines on the profiles between the gauging stations, a similar course to that just described for fixing the position of the lowest normal water level was followed. As both the said extreme water levels were, however, chiefly based on the normal level, it was considered unnecessary to plot the computed elevations on a large scale, for the more perfect elimination of the small fortuitous errors.

The river level is affected quite rapidly during the low water season at every change in the direction of the wind from the northward to the southward, or *vice versa*, all along from St. Johns to Lake Champlain, and as far down as Chambly Basin and St. Ours. The normal river surface was raised above St. Johns: as much as 1 foot in 5 hours, or less, during a strong southerly blow, and depressed correspondingly when stiff northerly winds repelled the waters of Lake Champlain towards its upper or southern extremity, without any part of the changes which took place in the water level, being due to either an increase or a falling off in the volume of the drainage received into the lake and river from the surrounding country.

When the water fell 1 foot in the river at St. Johns, during a strong north wind on Monday, 15th October, 1883, between 12 o'clock and 3.30 p.m., in less than 3½ hours; and on Saturday, 20th October, 0.95 foot between 7 a.m. and 12 noon, in less than 5 hours, little or no change was observed in the lake level at Philipsburg.

Again, when high southerly winds raised the river level 1 foot at St. Johns, on Thursday, 18th October, between 7 a.m. and 5.30 p.m., in less than 10 hours, no sensible rise took place at Philipsburg; but when the river level was elevated by the winds to the same extent (1 foot) at St. Johns, between 5.30 p.m., Sunday, 28th October and noon, Monday, 29th October, in 18½ hours, the lake fell during the same time, about 1½ inches at Philipsburg.

Occasionally in the fall of the year, instead of the Chambly Canal being supplied from the Richelieu, the reverse takes place, when the river having fallen more rapidly than the upper reach of the canal, the water flows out of the same southward into the stream. Thus, on 21st October, 1883; after two days of brisk north winds, following persistent high southerly winds, the water surface was at an elevation of 101.3437 feet below datum, in the river near the railway bridge at St. Johns, and at 100.14 feet in the canal at the guard lock (No. 1), the fall southward from the lock being as great as 1.2037 feet. This exceptionally great surface declivity in the short space of ½ a mile, was the result of the partial obstruction of the upper entrance channel by grounded barges. Had the water-way been clear as usual, the canal below the lock would have emptied itself more freely, and its surface would have assumed a much more gradual slope. Under such circumstances, an entrance lock at St. Johns, with sills placed 1.12 feet lower than the present ones, and provided with an additional pair of guard gates, pointing towards the canal, would be of service in preventing the water in the upper reach, over 9½ miles long, from falling below the standard level, which affords 7 feet depth on the sills of the locks at both ends: this is now a source of delay and expense to full-loaded barges using the Richelieu route to Whitehall and other ports on Lake Champlain.

The stretches from Chambly Basin to the St. Ours lock and dam, and from this dam to Sorel, at the mouth of the river, are correspondingly affected by the fluctuations produced by the winds in the reach above St. Johns; but somewhat later on, less suddenly, to a smaller extent and more irregularly. Thus, while a high south wind raised the water at St. Johns 1.3 feet in the 12 hours from 6 p.m., 24th August, to 6 a.m., 25th August, 1884, the maximum rise caused by this wind was:—

At Chambly Basin, only 0.85 foot.

At Beceil R.R. bridge, only 0.70 foot.

At St. Ours, above the dam, only 0.35 foot.

} From 6 p.m., 25th August, to
6 p.m., 26th August, 1884.

Below the lock and dam the water fell about 0.2 foot; the simultaneous depression at Sorel being 0.25 foot.

Again, from 6 p.m., September 26th, to 6 p.m., September 27th, 1884, the water was raised 1.15 feet at St. Johns by a brisk south wind, and the corresponding elevations produced by this wind at points below were:—

At Chambly Basin 1 foot, from 6 a.m. 27th September, to 6 a.m. 28th September.

At Belœil 0.75 foot from noon 27th do to noon 28th do

At St. Ours, above the dam, 0.5 foot, from noon 27th September, to noon 28th September.

At St. Ours, below the dam, 0.2 foot, from noon 27th September, to noon 28th September.

During the time last mentioned there was a fall of 0.05 foot at Sorel.

On the reach between St. Ours and Chambly, 30.75 miles long, the total fall is:

(a) For extreme low water level, corresponding to 6.92 feet, or 6 feet 11 inches depth on mud sill above St. Ours lock, and to 6.96 feet or 6 feet 11½ inches depth on sill at lower end of lock No. 9, at foot of Chambly Canal: 0.76 foot, viz., from 174.10 feet to 174.86 feet below datum, or at the mean rate of 0.0247 foot per mile.

(b) For the highest level observed on 27th April, 1885, with the river free of ice, which corresponds to a depth of 21.0862 feet = 21 feet 1 inch, on the last mentioned sill, and to a depth of 19.5475 feet = 19 feet 6½ inches, on the mud sill at the upper end of the St. Ours lock: 2.28 feet, viz., from 159.96 feet to 162.24 feet below datum, or at a rate of 0.0741 foot per mile.

(c) For extreme high water in April, 1869, when the volume of water coming down the Richelieu was very great, and the St. Lawrence at its usual spring level, the fall corresponding to the depths on the mitre sills which are on record in the lockmasters' water registers, was as great as: 4.64 feet, viz., from 157.33 feet to 162.02 feet below datum, or at the mean rate of 0.1509 foot per mile.

Prior to the construction of the St. Ours works for the improvement of navigation, the Richelieu was levelled from Chambly to St. Ours village, viz., in December, 1840, by Arthur G. Robinson, Esq., who shows on the profiles prepared by him, a fall of 4.62 feet from the outlet of the Chambly Canal to the site of the St. Ours dam and lock.

At the time these levels were taken, the river appears to have stood at an elevation corresponding to 11 feet, more or less, on the lower mitre sill of the entrance lock (No. 9) at Chambly; but I find nothing on record to show the height and fluctuations of the St. Lawrence at Sorel, nor is it stated anywhere, that the water levels were reduced to any one particular stage of the waters.

In the absence of any other alternative, the position of the river surface levelled in 1840 was fixed approximately on the profiles now submitted, by assuming that the water was, at Chambly: 11 feet over the mitre sill of lock No. 9, or at an elevation of 170.05 feet, and opposite the St. Ours lock island: at an elevation of $170.05 + 4.62 = 174.67$ feet below datum. From the foot of this island to Sorel a fall of 0.9353 foot was allowed, which brought the surface of the St. Lawrence at Sorel to 175.6 feet below datum, corresponding to 23.52 feet above the 0 of the present gauge of the Montreal Harbor Commissioners.

Mr. Robinson represents the high and low water levels as being parallel to the surface levelled by him, the former 9 feet above and the latter 4 feet below it, which is evidently not strictly correct; for this reason the water surface whose declivity is shown to have been established by actual levelling, has alone been indicated on the new profiles. This surface has a mean fall of 0.1489 foot per mile, from the foot of the Chambly Canal to the foot of the island at the St. Ours dam; the distance by channel being taken at 31 miles, as per cadastral plans. Without being in possession of all the facts respecting the fall and formation of the river bed all the way from Chambly to Sorel, the height of the St. Lawrence waters at this place and the state of the Richelieu above Chambly in December, 1840, it is of course useless to undertake the complicated and laborious task of computing the declivity that was assumed by the river surface previous to the construction of the St. Ours dam, at the stage for

which the volume of the discharge through the unobstructed waterway was the same as that which now passes over the dam at its lowest normal level herein described.

Judging, however, by Mr. Robinson's longitudinal section of the channel of the Richelieu, it would appear that before the construction of the said dam the waters of the St. Lawrence made their way up, even at low stages, as far as the Chambly rapids and the lower terminus of the canal.

This leads to the conclusion that the fall of the river at the low normal level at referred to, must have been very nearly the same as that of the surface levelled in 1840, possibly a little greater, owing to the increased destruction of living force by friction in a channel which contained 4 feet in depth less backwater.

As regards the extreme high water level which corresponded, as to discharge per unit of time prior to the construction of the dam, to that of 1885: considering that backwater from the St. Lawrence would then have passed up the Richelieu for a height of nearly $10\frac{1}{2}$ feet above the level of the summit of the dam, there is little or no doubt that the former high water level must have been very little lower than the latter; say at Chambly Basin: $\frac{1}{3}$ the difference of 0.82 feet between the elevation of the lowest normal level with the dam in place, and that of the corresponding level in the unobstructed stream, or about 0.30 foot.

These high and low stages of the river, previous to its improvement for navigation purposes by the construction of the St. Ours dam and lock, have been indicated approximately on the new profiles of sections Nos. 2 and 3, by dotted lines, in accordance with the statement just made; it is believed that they are represented with sufficient accuracy, to permit of judging intelligently of the probable effect of the dam &c., on the natural water level on the river stretch between Chambly and St. Ours.

It thus appears that the natural water level was here raised by the dam approximately as follows:—

1°. At normal low water:—

At Chambly Basin, from 174.30 feet to 173.48 feet = 0.82 foot.

At St. Ours, above dam, from 179.30 feet to 174.24 feet = 5.06 feet.

2°. At extreme high water:—

At Chambly Basin, from 160.30 feet to 159.96 feet = 0.34 foot.

At St. Ours, above dam, from 162.70 feet to 162.24 feet = 0.46 foot.

In the specification prepared for the construction of the St. Ours dam, September, 1846, it is stated: "The summit is to be raised 3 feet above low water." The crest or summit of the dam, which is now found to be at an elevation of 174.03 feet near the centre, where no subsidence appears to have taken place, however:

(a) $(173.69 + 4.0 = 177.69) - 174.03 = 3.66$ feet higher than the low water level shown by Mr. Robinson.

(b) $(179.33 - 174.03) = 5.30$ feet higher than the normal low water at the north end of the St. Ours lock, as established by me. (See page 183 of this report.)

(c) $(180.16 - 174.03) = 6.13$ feet higher than the extreme low water observed in October and November, 1879, below St. Ours.

On the portion of the river between St. Johns and Chambly Basin, 12.55 miles long, obstructed by rapids and opposite which navigation is carried on through the Chambly Canal, the water falls:—

(a) At the low stage, corresponding to a depth of 7.57 feet, or 7 feet 7 inches, the sill of lock No. 9 at the foot of the canal, and to a depth of 6.84 feet, or 6 feet 10 inches on the upper sill of the guard lock (No. 1) at St. Johns: from 170.38 to 173.43 feet below datum = 73.10 feet, or at the mean rate of 5.83 feet per mile.

(b) At the high water level observed in 1885, corresponding to a depth of 12.56 feet, or 12 feet 6 $\frac{3}{4}$ inches on the upper mitre sill at St. Johns, and to a depth of 10.9 feet, or 21 feet 1 inch on the mitre sill of lock No. 9 at Chambly: from 94.66 to 159.96 feet below datum = 65.30 feet.

At extreme high water, in 1869, the fall was reduced to about 64·00 feet at extreme but 5·10 feet per mile.

This obstructed portion of the river bed may be sub-divided into three distinct portions or stretches, as regards declivity, which are:—

1°, at the southern end: the St. John's Rapids, having a fall varying from 5·3 feet at extreme high water, to 6·0 feet at normal low water in 1·15 miles, viz., from the upper entrance of the Chambly Canal to smooth water at the foot of the tail-race of the St. Johns water works, near the centre of the sharp turn of the canal to the westward.

2°, at the northern end: the Chambly Rapids, with a total fall of 63·50 feet at low water, and about 56 feet at extreme high water, in a distance of 4·8 miles, viz. from the upper side of the by-wash, opposite lot No. 334 owned by the heirs Maguire to a point on Chambly Basin below Chambly Fort.

3°, the intervening sheet of comparatively smooth and level water, 6·55 miles long, where the fall is only 3·58 feet at low water, and about 3·85 feet at extreme high water.

On the upper or St. Johns Rapids, a small portion of the power of the stream is used for driving two grist mills, &c., and for pumping water into the town of St. Johns. There are valuable fisheries established near the foot of these rapids; some fish-dams constructed up near the head of the rapids, about 18 years ago, had, understand, to be removed, as suggested by H. W. Austin, Esq., the former fisheries inspector of the Richelieu district, in his report to the Hon. Minister of Marine and Fisheries, dated 3rd June, 1869, they being considered a source of damage to the riparian farms above St. Johns, on account of holding the water and keeping the lands flooded late in the spring.

The fine water power afforded by the Richelieu along the Chambly Rapids, also utilized in part for driving the machinery of grist and other mills—notably Chambly Canton, Mr. Willet's extensive mills—comprising woollen, cotton and grist mills, and shovel factory.

On the Chambly Canal the lock sills have been found to be at the following depths below datum, viz.:—

	Upper Sill.	Lower Sill.	Remarks.
	Feet.	Feet.	
Lock No. 1.....	107·22	107·25	Guard lock at St. Johns.
do 2.....	106·99	115·03	
do 3.....	122·96	123·10	
do 4.....	130·82	130·99	
do 5.....	139·15	139·19	
do 6.....	146·73	146·92	
do 7.....	146·95	155·97	Nos. 7, 8 and 9, combined locks; 146·95 only approximate.
do 8.....		165·38	
do 9.....		181·05	No 9, entrance lock at Chambly Canal

From Lake Champlain above Rouses Point to St. Johns, at north face of railroad bridge, distance 24·84 miles by water, the fall is: at normal low water, from 100·00 to 100·38 feet below datum at upper end of Chambly Canal entrance = 0·38 foot, or 0·0153 foot per mile.

During the high water observed in 1885 the fall was from 92·97 feet to 94·66 feet below datum, or 0·0678 foot per mile.

At the time of extreme high water, in 1869, the fall was probably as great as 2·0 feet, or 0·0805 foot per mile.

From the road leading to St. Valentin church, which is opposite the foot of Isle aux Noix, to St. Johns railroad bridge, distance by river 11·785 miles: the surface declivity is 0·0148 foot per mile, the fall being, at the lowest water, 0·148

oot. At the highest level in 1885 the fall was 0·56 foot nearly, or 0·0475 foot = a rifle over $\frac{1}{2}$ inch per mile.

In the report above referred to by H. W. Austin, Esq., it is stated that the fall on the portion of the river last described is 1 inch per mile, making 0·9 foot, nearly, or the whole distance. No mention is made in the said report of the authority on which this statement is based, nor of the stage of the water, whether high or low, at which this fall was supposed to obtain.

At low water the Richelieu River, from Rouses Point to the head of Chambly Canal at St. Johns, total distance $22\frac{3}{4}$ miles by water, may practically be viewed in the light of an extension of Lake Champlain northward into Canada. Any material interference with the natural conditions of flow on this, at times, nearly stagnant sheet of water, whether by constructing permanent or temporary, or movable dams or weirs, to provide suitable water power for manufacturing purposes, &c., or by deepening the waterway, with the object of relieving to some extent the fertile lands that are now damaged by flooding every year in the spring, might lead to disastrous consequences and serious international difficulties, unless proper means are taken at the same time to properly counteract the injurious effects likely to result from such a course.

In addition to the 109·94 miles of geodetic levelling performed along the Richelieu from Rouses Point, on Lake Champlain, to the mouth of the river at Sorel, as described at pages 141 to 143 of this report, the operations were extended in the fall of 1884, along the St. Lawrence from Sorel westward for a distance of about $4\frac{1}{2}$ miles and eastward to the village of LaBaie, &c., for a further distance of say 29 miles; the post road being followed the greater part of the way. The total distance levelled up to date is thus increased to $143\frac{1}{2}$ miles.

The results of these additional operations may be computed and submitted to you at the same time as those of such further work between Sorel and Quebec, etc., as I may be authorized to carry out in 1885-86, or when the level line shall be completed to Three Rivers, or as you may find most desirable in other respects.

In conclusion, I may be permitted to call your attention to the efficient assistance rendered, both in the field and in the office, by Messrs. C. F. Chaloner, assistant at level, and H. J. Friel, principal rodman, in performing their respective duties with that unremitting watchfulness and exactness without which satisfactory results cannot reasonably be expected in precision levelling.

I have the honor to be, Sir,

Your obedient servant,

R. STECKEL.

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APPENDIX No. 8.

STATEMENT

OF THE

DREDGING PLANT

OF THE

DOMINION.

Ref. No. 63,014.

APPENDIX No. 8.

STATEMENT showing the Number of Dredges, Dredge Tugs, Scows, and Stone Lifters, belonging to the Department, with Number of Crew, average Wages per month for the Year 1884, cost of Construction, &c.

Province where used.	Name of Vessel.	Description of Vessel.	Number of Crews.	Average Wages per Month.	Cost of Construction.	Remarks.
Nova Scotia and New Brunswick.....	St. Lawrence.....	Steam hopper dredge.....	15	\$ 495 97	\$ 116,339 48	This is an iron hull elevator dredge, built in Glasgow in 1874-76.
do do ..	Canada.....	do	11	370 85	42,778 44	This is an iron hull elevator dredge, built in Glasgow in 1871-73.
do do ..	New Dominion	Dipper dredge and 8 scows ..	11	238 76	30,826 51	A wooden hull spoon dredge, built in 1871-72.
do do ..	Cape Breton.....	do 5 do ..	13	287 66	19,744 38	do do 1874-75.
do do ..	George McKenzie....	do 4 do ..	11	271 47	15,000 00	do do purchased in 1879.
Prince Edward Island....	Prince Edward.....	do 6 do ..	11	322 21	23,582 07	Transferred from Local Government, P.E.I., at Confederation, on payment of \$22,000.
Quebec	Queen of Canada....	do	8	223 49	15,000 00	A wooden hull spoon dredge.
do	Scows.....	2 scows .....	.....	198 02 }		Hull rebuilt in 1883-84.
do	Nipissing.....	Dipper dredge and 2 scows ..	8	260 60	15,501 57	2 side dumping scows, 25 cubic yards capacity. Purchased July, 1880. Wooden built dipper dredge.
do	Dennis	Steam tug	3	142 28	2,000 00	Purchased at same time as "Nipissing."
do	Baillairgé.....	Stone-lifter and scow	9	300 00	1,600 00	Built in 1881-82 for working in swift currents. Consists of two flat-bottomed barges 42 ft. by 8 ft. by 3 ft., pointed at both ends, and placed 7 feet apart, joined at top by a timber platform, 23 ft. by 26 ft., Catamaran style, carrying a frame 14 ft. high, and provided with hoisting machinery.
do	St. Louis	Dipper dredge	8	145 00	6,535 83	Wooden hull spoon dredge, built at Lockport, N.Y., 1883.
Ontario	Challenge	do and 2 scows ..	6	219 03	31,211 32	Rebuilt 1884-85.
do	Trudeau.....	Steam tug.....	3	117 73	6,847 05	Purchased in 1876.
do	Ontario	Dipper dredge and 2 dump scows	7	270 00	20,960 00	Wooden hull spoon dredge, built at Lockport, N.Y. 1882.

Manitoba	Winnipeg	Dipper dredge and 2 dump scows	6	320 00	28,011 49	Wooden hull spoon dredge, built at Locke- port, N.Y., 1883-84.
do	Sir Hector	Steam tug	4	215 00	15,775 00	Built at Lockport, N.Y., 1883-84.
British Columbia	Dredger	Elevator dredge and 6 scows with pump	10	563 54	60,000 00	Built by Local Government 1865, and trans- ferred to Dominion at Confederation.
do	Georgie	Steam tug	6,250 00	Purchased in 1875.

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APPENDIX No. 9.

QUEBEC HARBOUR IMPROVEMENTS.

REPORTS ON THE PRINCESS LOUISE EMBANKMENT AND DOCK
WORKS, RIVER ST. CHARLES; AND ON THE
GRAVING DOCK, LEVIS.

BY

THE QUEBEC HARBOUR COMMISSIONERS.

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APPENDIX No. 9.

QUEBEC HARBOUR IMPROVEMENTS—RIVER ST. CHARLES; AND
GRAVING DOCK AT LEVIS.

HARBOUR COMMISSIONERS' OFFICE,

QUEBEC, 13th November, 1885.

of. No. 63,174.

SIR,—In compliance with your request, conveyed in your letter of the 17th July
 at, I have the honour to transmit to you herewith the Chief Engineer's Report, both
 the Harbour and the Graving Dock Works for the fiscal year ended the 30th June
 at.

I have the honour to be, Sir,

Your most obedient servant,

A. H. VERRET,

Secretary-Treasurer.

GOBEIL, Esq.,

Secretary Department Public Works.

OTTAWA, 3rd November, 1885.

SIR,—I have the honour to submit the following with reference to the progress
 made on the works of the Commission at Quebec, up to the 30th June, last.

LOUISE BASIN.

Good progress was made during the year. The large and powerful dredges fur-
 nished by the contractors, have been employed without interruption during the
 working season in deepening the tidal portion of the works, and in excavating to the
 proper depth for the foundations of the cross-wall.

Four of the foundation cribs of this wall have been sunk in position and filled
 with concrete.

During the winter the large heaps of sand left by the former contractors, and
 deposited by the present ones, were levelled, and thus a considerable space of
 marsh ground was rendered available for use.

A double line of rails has been laid on the embankment, and connection has been
 made with the North Shore Railway. When the track is fully completed, full use
 can be made of the ample wharf accommodation afforded by the embankment.

GRAVING DOCK, LEVIS.

After much difficulty the leaks through and under the wing-walls and coffer-dam
 were overcome, and work on the main portion or body of the dock was pushed forward
 as fast as possible.

During the year the caisson was erected and is nearly ready for being put in place.

The engine house has been commenced and the boilers have been put in position.

The keel-blocks have been delivered and an arrangement has been made with the dock contractors to set them in place.

Altogether the works on both sides of the river have been carried on in a most satisfactory manner by the contractors.

I have the honour to be, Sir,

Your obedient servant,

HENRY F. PERLEY,

Chief Engineer, Harbour Works, Quebec.

A. H. VERRET, Esq.,

Secretary-Treasurer Harbour Commission,

Quebec.

APPENDIX No. 10.

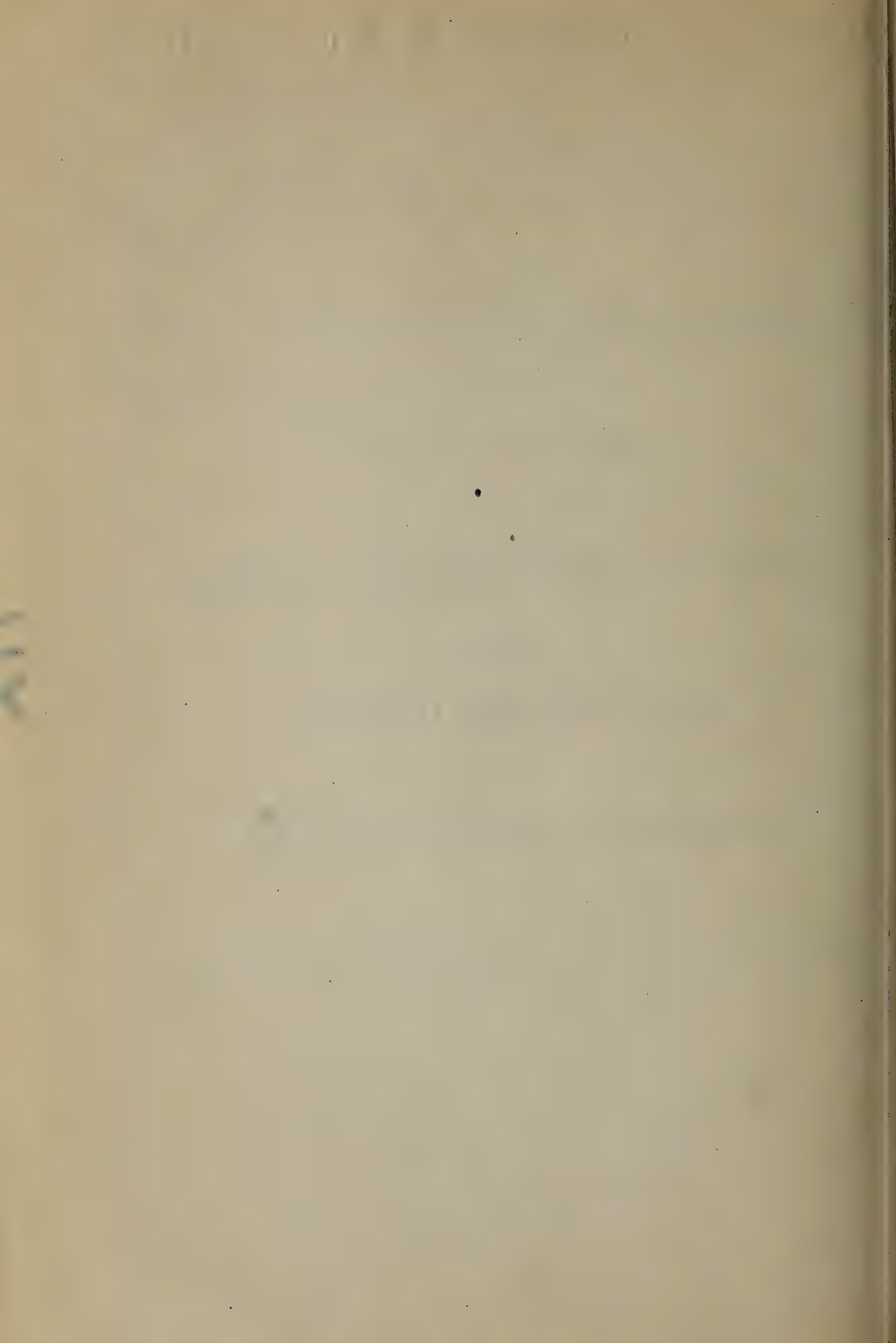
REPORT ON DEEPENING THE CHANNEL

BETWEEN

MONTREAL AND QUEBEC,

BY

THE MONTREAL HARBOUR COMMISSIONERS.



APPENDIX No. 10.

REPORT OF THE MONTREAL HARBOUR COMMISSIONERS ON THE
DEEPENING OF THE CHANNEL BETWEEN
MONTREAL AND QUEBEC.

Ref. No. 62,226.

HARBOUR COMMISSIONERS OF MONTREAL,

SECRETARY'S OFFICE, MONTREAL, 6th October, 1885.

SIR,—In compliance with the request contained in yours of the 19th July, I beg to send you herewith a copy of our Chief Engineer's report on the deepening of the ship channel between Montreal and Quebec, for the fiscal year ended 30th June last.

I have the honour to be, Sir,

Your obedient servant,

H. D. WHITNEY,

Secretary.

A. GOBEL, Esq.,

Secretary Department of Public Works,
Ottawa.

HARBOUR COMMISSIONERS OF MONTREAL,

CHIEF ENGINEER'S OFFICE, MONTREAL, 26th September, 1885.

DEAR SIR,—In compliance with the request of the Secretary of Public Works, I beg to submit the following report upon the work of deepening the ship channel of the St. Lawrence, between Montreal and Quebec, during the Government fiscal year ended 30th June, 1885.

The work in hand is in general terms the deepening of the ship channel to 27½ feet at low water, instead of 25 feet depth, as at present. The breadth of the deepened channel is being made the same as at present, that is, 300 feet in the straight parts, with enlargements to about 450 feet at bends and other places where more room is needed.

At the opening of the fiscal year work was being carried on at various points between Cap-a-la-Roche and Montreal, with the Harbour Commissioners' fleet of dredges and tenders, and operations were continued throughout the year, with exception of the necessary suspension during winter.

The chief details of the work accomplished during the fiscal year, and the cost of that part done up to the close of navigation, 1884, are as follows :—

CAP CHARLES.

Dredging was commenced on 7th July and continued till 11th October with one dredge, assisted, when required, by a stone lifter. Quantity dredged, 24,818 cubic

yards, shale rock, scow measurement, and 138 cubic yards boulders ; in all, 24,951 cubic yards, costing $45\frac{5}{8}$ cents per yard.

POUILLIER RAYER.

Work was continued with one dredge and a stone lifter from 1st July to the close of navigation in 1884, and with two dredges and the stone lifter from the opening of navigation to the end of the fiscal year in 1885, by which time the channel had been carried through the greater part of the shoal.

The dredging consists of very hard, tough hard-pan clay, with many overlying and imbedded boulders of all sizes, up to 30 or 40 tons weight. Quantity dredged, 42,840 cubic yards, costing 39 cents per yard. Boulders lifted by stone lifters, 3,879 cubic yards costing 93 cents per yard.

CAP-À-LA-ROCHE.

Work was carried on with one dredge to the end of July ; with two dredges from that to the 9th of November, 1884, and again with two dredges from the middle of May to the end of the fiscal year 1885. The material continues to be shale rock, similar to that met with in previous years, and is easily worked by the powerful dredges expressly fitted up for the purpose. Quantity dredged, 120,307 cubic yards, costing $46\frac{1}{2}$ cents per yard, scow measurement.

LAKE ST. PETER.

Dredging was continued with two dredges from the beginning of the fiscal year till the end of September, 1884 and from the middle of May till the close of the fiscal year 1885 during which time $3\frac{3}{4}$ miles of the channel were deepened from the former depth of 25 feet to the new depth of $27\frac{1}{2}$ feet at low water, with a breadth of 321 feet. Quantity dredged, 412,109 cubic yards soft clay, costing $5\frac{1}{8}$ cents per cubic yard.

CONTRECEUR NEW CHANNEL.

One to two dredges were employed a short time last fall and again in June of this year. Quantity dredged, 96,615 cubic yards, costing $8\frac{2}{3}$ cents per yard.

POINTE-AUX-TREMBLES.

From 10th October to 1st December, last fall, dredging was carried on with one to three dredges. Several detached pieces, amounting in all to three-fourths of a mile in length and 300 feet width, were deepened to $27\frac{1}{2}$ feet at low water.

Quantity dredged, 3,945 cubic yards rock, costing \$1.35 per yard, and 97,14 cubic yards clay and boulders, costing, on an average, $14\frac{3}{4}$ cents per yard.

LONGUEUIL.

In the channel opposite the village a small piece of very hard dredging, consisting of boulders of all sizes, bedded in tough clay and gravel, were taken out last fall. Quantity, 1,298 cubic yards, costing \$1.40 per yard.

MONTREAL.

In the ship channel through the harbour, chiefly opposite Hochelaga, on the main shoal opposite Victoria Pier and opposite the Island wharf, a quantity of dredging was done, partly by the plant of the harbour fleet and partly by that of the ship channel fleet. Total quantity, 22,498 cubic yards, costing $54\frac{1}{2}$ cents per yard.

The aggregate quantity of dredging done at all points in the ship channel during the Government fiscal year ended 30th June, 1885, was 807,522 cubic yards, as against 545,981 cubic yards in the preceding year.

The floating plant employed in the work during the year last past consisted of six elevator dredges, two to four spoon dredges part of the time, two stone lifters, seven screw tugs, four barges, used as coal tenders and smiths' shops, eighteen hopper-bottomed scows and five flat scows. Of the six elevator dredges, two are for working in earth, and have buckets of 16 and 27 cubic feet capacity; one is for either rock or earth and has buckets of 16 cubic feet capacity, one is for rock, with buckets of 4 cubic feet capacity, and the remaining two are for rock, with buckets of $6\frac{1}{2}$ cubic feet capacity.

Yours respectfully,

JOHN KENNEDY,

Chief Engineer.

H. D. WHITNEY, Esq., Secretary,
Montreal Harbour Commission.

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APPENDIX No. 11.

REPORT

ON THE

Saguenay District Slide and Booms,

FOR THE FISCAL YEAR ENDED 30TH JUNE, 1885,

BY

HENRY F. PERLEY, CHIEF ENGINEER

AND

JOSEPH ROSA, SUPERINTENDENT.

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APPENDIX No. II.

SLIDE, BOOMS, &c.—SAGUENAY DISTRICT.

Ref. No. 62,416.

CHIEF ENGINEER'S OFFICE,

OTTAWA, 15th October, 1885.

SIR,—Herewith I transmit a report by Mr. Joseph Rosa, Assistant Engineer, relating to the Saguenay slide, for the fiscal year ended 30th June last.

I am, Sir,

Your obedient servant,

HENRY. F. PERLEY,

Chief Engineer.

A. GOBEIL, Esq.,

Secretary Department Public Works.

QUEBEC, 23rd September, 1885.

SIR,—During the fiscal year 1884-85 a further length of 1,020 feet of the slide has been re-built, and temporary repairs have been made to the remainder.

Dam No. 6 has been re-built and raised to its original level.

Dams 1, 2, 3, 4 and 5 have received temporary repairs.

Forty-one thousand four hundred and twenty-seven logs passed through the slide during the year.

I have the honour to be, Sir,

Your obedient servant,

JOSEPH ROSA,

Superintendent.

HENRY F. PERLEY, Esq.,

Chief Engineer, Department of Public Works.

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APPENDIX No. 12.

REPORT

ON THE

T. MAURICE DISTRICT SLIDES AND BOOMS,

FOR THE FISCAL YEAR ENDED 30TH JUNE, 1885,

BY

HENRY F. PERLEY, CHIEF ENGINEER,

AND

CHAS. LAJOIE, SUPERINTENDENT.

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APPENDIX No. 12.

SLIDES AND BOOMS—ST. MAURICE DISTRICT.

Ref. No. 61,093.

CHIEF ENGINEER'S OFFICE,

OTTAWA, 7th August, 1885.

SIR,—Herewith I transmit a report by Mr. C. Lajoie, Superintendent of the St. Maurice, on the works under his charge for the fiscal year ended 30th June, last.

I have the honour to be, Sir,

Your obedient servant,

H. F. PERLEY,

Chief Engineer.

A. GOBEL, Esq.,
Secretary Department of Public Works.

(Translation.)

ST. MAURICE WORKS,

THREE RIVERS, 22nd July, 1885.

SIR,—I have the honour to transmit to you, for the information of the Minister of Public Works, a report on the works under my superintendence, for the year ended 30th June last.

The quantity of logs made this year on the St. Maurice will be less than the preceding year, and although the water has been very high up to this date a large portion of them has not yet passed into the booms.

The spring may be said to have been disastrous to the St. Maurice works. The break up of the ice carried away three large piers and greatly injured several others, apart from 1,200 feet of boom, of which only a small portion could be saved.

The repairs to be made were estimated at about \$14,000, but would have cost over \$20,000 if we had not decided to postpone the re-construction of two of the piers which were carried away, and to endeavour to do without them in future. The experiment has this year proved very satisfactory.

The amount granted for maintenance was \$14,000 and the outlay was \$16,739.63, being an excess of expenditure of \$2,614.02 expended upon the new station at Grandes Piles, for which there was no grant; deducting this sum of \$2,614.02 there only remains an excess of expenditure of \$125, and \$126 for a journey to the Iroquois.

The sum voted for repairs was \$4,000, of which \$3,654.34 has been expended, leaving a balance of \$345.66 unexpended. Notwithstanding the extra outlay consequent upon the breaking up of the ice, you will observe that we kept within the limits of the two grants, apart from the outlay at Grandes Piles, for which no provision was made.

The outlay for repairs at the different stations was for the following :—

MOUTH OF THE ST. MAURICE.

Two piers, 20 feet by 20 feet, and 15 feet high.

One wharf, 12 feet by 14 feet for mooring purposes.

308 feet of sheeting at various piers.

A house, 36 feet by 24 feet, to serve as a lodging for the keeper, and also for an office for the requirements of the station.

CAPE CORNEILLE.

Replacing 8 posts on various piers.

Re-building pier No. 5, from low water mark.

Repairing Nos. 13 and 19, one toise of stone.

Re-building No. 23, from low water mark.

No. 20, two toises of stone.

258 feet of sheeting at various piers.

8 toises of stone for land protection.

SHAWENEGAN.

Repairing the slide.

Completing the house at the falls.

Constructing a moving wharf.

Repairing the house at the bay, and all the other buildings at the station.

Raising the station wharf 2 feet by 120 feet; rebuilding 36 feet of the same wharf, that portion having fallen down, and placing a hand-rail throughout its whole length, 120 feet.

All of which is respectfully submitted.

I have the honour to be, Sir,

Your obedient servant,

CHARLES LAJOIE,

Superintendent St. Maurice Works.

H. F. PERLEY, Esq.,

Chief Engineer Public Works, Ottawa.

APPENDIX No. 13.

REPORT

ON THE

Ottawa District Slides and Booms,

FOR THE FISCAL YEAR ENDED 30TH JUNE, 1885.

BY

HENRY F. PERLEY, Chief Engineer

AND

GEO. P. BROPHY, Superintending Engineer.

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APPENDIX No. 13.

SIDES AND BOOMS—OTTAWA DISTRICT.

Ref. No. 61,091.

CHIEF ENGINEER'S OFFICE,

OTTAWA, 7th August, 1885.

SIR,—Herewith I transmit the annual report by Mr. G. P. Brophy, Superintending Engineer, on the works under his charge on the Ottawa River and tributaries, for the fiscal year ended 30th June last.

I have the honour to be, Sir,

Your obedient servant,

HENRY F. PERLEY,

Chief Engineer.

A. GOBEIL, Esq.,

Secretary Public Works Department.

OTTAWA, 31st July, 1881.

SIR,—I have the honour to submit the following report on the works under my charge on the Ottawa River and tributaries, for the fiscal year ended 30th June last.

The bulk of the 1884 timber reached its destination before the close of last season of navigation, and only a few parcels of square and flatted timber, and some sawlogs that had been stranded in the tributaries, were detained until the drives of the present season. During the autumn months, and before the setting in of the winter frosts, such of the foundations of the slides, dams and piers as were damaged and shaken by the traffic of the preceding season, were examined and repaired. Those works consist of—

On the main Ottawa River at Calumet Station.—Certain apron fingers renewed, crabs repaired and the bottoms of slides patched.

At Mountain Slide, where a break in the sub-structure had occurred towards the end of the fiscal year, 1884, the foundation timbers and planking were thoroughly overhauled, and as much as possible of the work done while a low pitch of water prevailed.

At the Chats Station ordinary repairs were executed from time to time to maintain the slide in a state of efficiency, the material used being principally timber, iron and stone.

At the Ottawa or South Chaudière Slide the bottom planking and booms were repaired and strengthened and the main storehouse for the safe-keeping of ropes, chains and tools enlarged and improved.

At the Hull Slide the side and bottom timbers and planking, where decayed and worn, were strengthened, and defects made good.

The approaches of the Union Suspension Bridge, between the Cities of Ottawa and Hull, were rounded up and received a coating of road metal and the Toll-house and out-buildings were repaired and portions of the woodwork repainted.

At the Sault au Recollet Station the boom fastenings were adjusted and certain repairs effected to a scow and mooring appliances.

On the Coulonge River.—The slide at High Falls was patched and strengthened to carry it through the season.

On the Petewawa River.—The side piers and planking of the single-stick slide at Crooked Chute were examined, the old materials removed and new timbers and sheeting substituted.

On the Black River.—The foundations and bottom timbers of the slide were repaired and sections of hardwood plank on end inserted at the steep pitch near the lower end, to withstand the friction of the passing logs.

On the Madawaska River.—Near the mouth of the stream certain alterations and repairs were made at the Arnprior booms and piers, with the view of strengthening them and securing an alignment more favourable to the passage of square and flatted timber and sawlogs from the Madawaska to the retaining boom in the Ottawa at Flat Rapids; the old side dam was blocked up, staunched, and replanked and the Chain Rapids single-stick slide was braced up, patched at its entrance piers and strengthened, and certain wing dams for gathering the water on the shoals of the upper reaches were staunched and replanked, and protection afforded against the spread of fire near the shore ends of the dams.

On the Gatineau River.—The floating stages of the booms at the gaps, near the mouth and at the outlet creek, were repaired and improved, and bark and other rubbish obstructing the channel removed.

After the timber of 1884 had passed, the following work, chargeable to reconstruction, was undertaken and carried out:—

On the Coulonge River.—A quantity of timber was procured preparatory to the building anew of the superstructure and the blocking up and levelling of the crib foundations of the long single-stick slide at High Falls, and the necessary timber supplies were further increased during the winter months, in order that the work of reconstruction may be proceeded with on the removal of the old materials immediately after the passage of the logs and timber of the season of 1885.

On the Petewawa River.—Advantage was taken of the season of the low water to affect the renewal of the foundations of certain side dams and their plank coverings on the upper reaches of the stream, and also to staunch and partially rebuild the headworks of the single-stick slides at Lake Traverse and Crooked Chute, and to level up and strengthen the wing-dams and bulk-head openings of the main reservoir dam at Cedar Lake.

On the Madawaska River.—At Flat Rapids the extensive wing dams which have been wrecked and overrun by fire were rebuilt, and a means afforded the raftsmen of avoiding the troublesome shoals on which their drives, or at least considerable portions of them, were stranded and detained at certain stages of the water, before the consummation of these improvements.

At High Falls Slide.—A renewal of the superstructure and a better alignment thereof, together with a modification of the grades, have had the effect of greatly improving the passage of logs and other descriptions of timber, and have given an opportunity to reduce the number of men necessary to operate the slide during the running season.

The work chargeable to construction consists of the dredging of a channel through a sand bar in the Ottawa River near the Bristol Wharf, the dimensions of the materials excavated having been—length, 1,200 feet, by an average width of 10 feet, and a depth of a little over 2 feet; and the building of a snubbing pier in the Chats Rapids.

During the winter and spring months further repairs were executed on the Ottawa River, at Rocher Capitaine, Joachim, Calumet, Mountain, Portage du Fort, Chats, Hull and Chaudière Slides, and Cheneaux Boom and Piers and Chats Station House.

On the Petewawa River.—The stop-log hoisting apparatus at Thompson's Rapids bulkhead was repaired and on the lower reach the Bois d'Arc Slide and dams and the

planking of the dams and slides at the 1st, 2nd and 3rd Chutes was staunch and made good where defective.

On the Black River.—The slide bottom was repaired and strengthened, and the side piers levelled up, while the booms were overhauled and defects made good in connecting chains.

On the Coulouge River.—The slide planking was patched and such temporary repairs done as would adapt the works to the passage of the logs and timber of 1885, immediately after which season's business the work of the reconstruction of the long slide at High Falls is to be commenced.

On the Madawaska River.—The dams and slide at Cham Rapids were very much improved, which has had the effect of materially facilitating the passage of timber and logs, where formerly cross currents and eddies, near intricate channels, delayed and endangered the operations of the raftsmen at this important station. The main boom and support piers at the mouth of the river, near Arnprior, were considerably strengthened and improved, and additional sunken or anchor piers placed at intervals to relieve and distribute the strain on the boom.

On the Gatineau River.—The main guide boom, near the mouth of the stream, had its mooring chains and connecting links adjusted, and the upper guide boom strengthened and stiffened, by the placing of an additional anchor pier; and the stone filling of the guard entrance pier at the canal leading to the lake was levelled up and sheeted, as a protection against the drifting ice and logs at the break up in the spring.

With the cold spring rains the Ottawa and tributaries rose before the action of the sun's rays and a more genial temperature had, to any appreciable extent, weakened the ice, which had formed to a great thickness on the streams during the protracted winter; consequently, the ice shoves, in compact bodies, did great damage to the works under my charge—notably at Carillon, where lengths, aggregating about 2,400 feet, of heavy 6-ply booms, were swept away and broken into such pieces as rendered them useless, while many of the support piers were shaken and had their superstructures displaced. The slide entrance was also damaged and some of the timbers shattered, thus rendering the slide inoperative for the portion of the season of 1885 covered by this report. On the Coulouge River the guide booms and piers at the head of the long slide and the booms further down stream were broken, but repairs were executed with as little delay as possible, and the running of timber and logs through the slide resumed. The slide at Back River also sustained damage in its bottom planking, which was speedily made good. At the head of the Sault au Recollet, in the branch of the Ottawa in rear of Montreal, known as Back River, and immediately above Pont Viau, the ice, in moving out, swept away the upper support pier of the guide boom there, and stripped the top courses of timber and part of the stone filling from two other piers in the same line; but the necessary repairs cannot properly be executed until a lower pitch of water.

At several other stations the works were somewhat damaged by the ice and spring floods, but not to any great extent, and in such cases repairs were promptly made. After the water had attained its greatest height, at a period somewhat later in the season than usual, there was a very favourable opportunity afforded the raftsmen for driving in the creeks and upper tributaries, and I am glad to say that a comparatively small portion of the timber and logs was stuck.

On the main Ottawa, with a few exceptions, the conditions were also favourable to the raftsmen, so that, taken as a whole, the drive of 1885 may be said to have been successful up to the time of writing. Escaped logs, in large numbers, from the Upper Ottawa Improvement Company's booms and drives, have, in past years, occasioned much inconvenience and expense, by drifting into and blocking the entrance channels at the Joachim, Calumet, Mountain, Portage du Fort and Chats Slides, and have passed free of toll through these works, involving much tear and wear, more especially at the Chats station, this spring and summer. I would therefore recommend that steps be taken to establish a reasonable rate of tolls for the accommodation furnished to the company in the use of the Government works.

I have been furnished, by the collector of slide dues, with information showing the number of pieces of timber and sawlogs that passed through the Government slides and works on the Ottawa River and its tributaries under my charge during the year ended 30th June, 1885, to have been—

	Pieces.
White pine timber.....	53,029
Red pine.....	6,940
Boom and dimension.....	19,613
Cedar.....	2,572
Traverses.....	405
Ash.....	49
Elm.....	13
Tamarac.....	2,149
Basswood.....	81
Birch.....	1
Spruce.....	2
Spars.....	1
White wood.....	5
3,925 railroad ties, equal to 490 pieces of flatted timber....	490
Total pieces of timber.....	85,350
Cribs of oars.....	5
Pieces saw logs.....	2,341,171

In respectfully submitting the above,

I have the honour to be, Sir,

Your obedient servant,

GEO. P. BROPHY,

Superintending Engineer, Ottawa River Works.

H. F. PERLEY, Esq.,

Chief Engineer, Department Public Works.

APPENDIX No. 14.

REPORT

ON THE

NEWCASTLE DISTRICT SLIDES AND BOOMS,

FOR THE FISCAL YEAR ENDED 30TH JUNE, 1885.

BY

HENRY F. PERLEY, Chief Engineer

AND

R. B. ROGERS, Acting Superintending Engineer,

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APPENDIX No. 14.

SLIDES AND BOOMS—NEWCASTLE DISTRICT.

Ref. No. 61,092.

CHIEF ENGINEER'S OFFICE,
OTTAWA, 7th August, 1885.

SIR,—Herewith I transmit a report by Mr. R. B. Rogers, Acting Superintending Engineer, on the works under his charge in the Trent and Newcastle District, for the fiscal year ended 30th June last.

I have the honour to be, Sir,

Your obedient servant,

HENRY F. PERLEY,

Chief Engineer.

A. GOBEIL, Esq.,

Secretary Department Public Works.

TRENT CANAL WORKS,
ENGINEER'S OFFICE,
PETERBOROUGH, 23rd July, 1885.

SIR,—I have the honour to submit the following report on the works temporarily under my charge, connected with the Department of Public Works, for the year ended 30th June, 1885.

The works in the district under my supervision are constructed for two purposes, viz., those erected for the improvement of navigation, and those erected to facilitate the descent of timber. The latter of these are under the direction and control of this Department, and consist of dams, slides, booms, &c. The works are situated in the district extending from the Bay of Quinté to Lindsay and Fenelon Falls, a distance of about 165 miles.

Owing to the immense country drained, there is a danger every spring of injury to the works (many of which are very old) by the freshets. Last spring a very heavy freshet was apprehended, but owing to a cold spell during the spring the rush of water was checked, and it came down very gradually, doing nothing more than the usual amount of damage to the works.

I shall proceed to give a brief description of each of the works at the different stations, together with the repairs executed during the past year.

FENELON FALLS.

The boom in the steamboat channel was overhauled and one of the piers repaired.

There was an appropriation made for the repair of the piers and glance boom above the slides, but owing to the construction of new works now going on at this station, under the direction of the Department of Railways and Canals, the position of the piers and booms may require to be altered, so nothing was done to them.

LINDSAY.

The work at this station consists of a flat dam, to which no repairs were done. The hull of an old steamer, which had drifted into the channel near the wharf, was removed.

BOBCAYGEON.

The work at this station consists of two dams, a slide, piers and booms. The dams are long and very old. They are in a very decayed condition, and leak very badly. The dams control an important stretch between Bobcaygeon, Lindsay and Fenelon Falls. The dams were well gravelled last fall, which helped in a measure, to stop the leakage. Many of the braces of the dam which had given out were replaced. Two new piers and a strong boom were placed at the entrance of Big Bob Channel, to prevent logs from passing down in case of a break up in the lake above. A large drive of logs did break away this spring, before the piers were finished, and did considerable damage to the dam. This will be prevented in future.

BUCKHORN.

The slide at this station, which was thirty-three (33) feet, was reduced to twenty (20) feet, thereby saving a large quantity of water during the passage of timber.

The piers of the glance boom were repaired. The dam is in good condition except a slight leak at the south side. A new lock and canal have been completed at this station, under the direction of the Department of Railways and Canals.

BURLEIGH.

A slide, dam, booms and piers were built at this station many years ago by a committee appointed by the lumber trade.

Of late years they have received but slight repairs, so they have become in a very dilapidated condition, in consequence of which there has been much complaining by the lumbermen. I have no doubt but that the lumbermen would willingly agree to pay tolls at this station if the works were kept in repair. Locks are being built at this station by the Department of Railways and Canals.

YOUNG'S POINT.

The Department of Railways and Canals have recently completed a new dam at this station to retain the water of Clear and Stoney Lakes. Two new piers and glance booms will be required for the timber slides. The channel to be used as a timber channel between the island and the Dummer shore was cleared of boulders, and a good passage for timber was made.

KATCHEWANNOE LAKE.

Seven piers were constructed, to which to fasten a boom to divide the steamboat channel from the timber channel. This will form two channels, one for navigation and the other for timber, from Young's Point to Moodie's Island, in the Katchewannee Lake. The boom will be placed in position as soon as timber can be procured for that purpose. A channel was cut for a distance of about 100 feet by 80 feet wide, and 3 feet deep, across the upper end of Henderson's Point, to admit the timber passing behind the point instead of through the narrows.

LAKEFIELD.

At this station a new dam has been constructed by the Department of Railways and Canals, to retain the water in Katchewanoe Lake at navigable height. New lance booms will have to be placed in position for the timber slides.

PETERBORO'.

A considerable sum was appropriated some two years ago to remove the sawdust, so as to render the river navigable. The river is again fast filling up, and it is even now almost impossible for the larger boats to approach the wharf on this account.

LITTLE LAKE.

There are at this point piers and a three-stick retaining boom. The lake, like the river above, is fast filling up with mill refuse. The sawdust is a continual source of annoyance at the locks at the lower end of this lake. It banks up against the gates, and it is only with the greatest difficulty that they can be opened.

WHITLAW'S RAPIDS.

The guide booms received some repairs; also the upper end of the wing dam.

OTONABEE RIVER.

The channel at the shoal, known as the "Yankee Bonnet," was much improved by having some of the boulders removed. At "Dangerfield," a shoal, a short distance further down stream, consists of a sand deposit, which can only be removed by a dredge. The entrance of the river into Rice Lake is by three mouths. The east mouth, which is the straightest and much the shortest channel, has been completely closed by sawdust.

KEENE.

There is considerable trade at this port, which is reached by a very circuitous channel of the Indian River. With a small outlay this channel, which is through loose, boggy soil, could be much improved. A petition has, I believe, been addressed to the Department by the residents of this locality, to have this done.

HASTINGS.

A new gallows frame was built on this slide, and the bulkheads of the slide were repaired. The dam leaks very badly, and will require to be caulked this fall. The bulkheads of the several old flumes, on the south side of the river, leak very badly, and some means will have to be taken to stop this leakage, in order to keep the water at navigable height.

HEELEY'S FALLS.

A break was made in this dam in the spring of 1884, and part of the appropriation of Fenelon Falls was taken to repair this. A new cap was put on the dam for about 100 feet, new braces were added and the whole re-planked.

MIDDLE FALLS.

Part of the planking on the lower end of the slide was taken off by the passing timber. This was replaced. A bad shoal of flat rock exists at this station, which is

a great source of annoyance to the lumbermen. A glance, made of three pieces of timber, bolted to the bottom, is being placed at the gap made in the old cribwork which will prevent the logs from shoaling.

PERCY BOOM.

The freshet of last year carried away a pier on the west shore. A new pier was constructed to replace it. This spring a pier on the east side was taken away by the ice. The old piers were too small for the great depth of water.

CHISHOLM'S.

The waste weir on the south side was made so that timber could pass through. It will not now be necessary for timber to pass along the whole face of the dam, as heretofore. This will save the dam, as the timber continually passed under the glance boom and over the dam. The slide and sluices are in a very dilapidated condition, and would require to be almost wholly rebuilt.

I have the honour to be, Sir,

Your obedient servant,

RICHARD B. ROGERS,

Acting Superintending Engineer.

H. F. PERLEY, Esq.,

Chief Engineer Department Public Works,

Ottawa.

APPENDIX No. 15.

STATEMENT OF STAFF EMPLOYED

ON THE

SLIDES AND BOOMS

THROUGHOUT THE DOMINION.

APPENDIX No. 15.

[Ref. No. 63,141.]

STATEMENT showing the Names, Dates of Appointment, Salaries, &c., of persons employed on the different Slides and Booms.

Name.	Position.	Where Employed.	Date of Appointment.	Salary.	Remarks.	
<i>Saguenay District.</i>						
Arthur Boulanger.....	Superintendent	Saguenay	19th May, 1881	\$ 475 00 per annum...	Employed the whole year.	
Calixte Fortin.....	Asst. Superintendent	do	13th do 1881	30 00 per month....		
Frs. Trépanier.....	Carpenter	do .....	.....	1 50 per day	
<i>St. Maurice District.</i>						
Charles Lajoie	Superintendent	Three Rivers.....	7th Oct., 1878	1,200 00 per annum...	Employed about the works for 20 or 25 years.	
J. B. Normand.....	Boom Master.....	Mouth St. Maurice.....	12th April, 1858	3 00 per day		
L. E. Gervais.....	Paymaster.....	Three Rivers	2nd Sept., 1881	50 00 per month....		
Cyrac Lymburner	Foreman	Mouth St. Maurice.....	25th April, 1881	565 00 per annum...		
Jos. Pagé	Boom Keeper	Capaux Cornuilles.....	10th Dec., 1879	452 50 do		
Arthur Rousseau.....	Deputy Slide Master.....	Shawenegan	12th April, 1858	3 00 per day		
Charles Langlois	Foreman	do	13th Jan., 1880	444 00 per annum...		
Theophile Larue	Boom Keeper	Grand Mère	15th March, 1872	2 00 per day		
<i>Richelieu District.</i>						
Azarie Bienvenue.....	Boom Master.....	Belœil Station	1st June, 1882	100 00 per annum...		
<i>Ottawa District.</i>						
G. P. Brophy	Superintendent	Ottawa	6th July, 1873	2,200 00 per annum...		
D. Scott	Accountant.....	do	1st Oct., 1854	900 00 do		
W. Kane	Messenger	do	1st Aug., 1867	1 25 per day		
		do		2 00 do		

D. Noonan	Boom Master	Gatineau	21st March, 1878	500 00 per annum...	Actively employed about 7 months. Oversees repairs in winter.
W. J. Macdonald	Deputy Slide Master.	Chaudière	25th April, 1876	635 00 do	Employed about 6 months.
J. McDonell	do	Hull	1st March, 1877	1 25 per day	Employed about 6 months during navigation.
D. McFarlane	do	Chats	27th do 1880	480 00 per annum...	Looks after repairs in winter.
John Harvey	Slide Master	Arnprior	12th July, 1882	2 50 per day	
James Brown	Foreman	do	.....	39 00 per month ..	
Alex. Thompson	Assistant Foreman..	do	.....	32 50 do	
Jos. McCrea	Boom Master	Springtown	15th May, 1880	200 00 per annum...	Employed about 3 months during the season of navigation.
James Barry	Deputy Slide Master.	High Falls, Madewaska	29th March, 1854	480 00 do	Employed 4 or 5 months during the season of navigation. Looks after repairs in winter.
Duncan McLaren	do	Portage du Fort	7th Sept., 1881	300 00 do	Employed about 4 months.
J. G. Poupore	do	Black River	15th Oct., 1880	480 00 do	Employed about 4 months passing timber. Looks after repairs in winter.
James Rowan	do	Lower Petewawa ..	18th April, 1858	480 00 do	Actively employed about 4 months passing timber. Looks after repairs in winter.
Wm. Thompson	do	Mountain	10th Oct., 1879	1 00 per day	Actively employed about 6 months during season of navigation. Looks after repairs in winter.
D. Carmichael	do	Calumet	— Aug., 1848	40 00 per month ..	Actively employed about 5 or 7 months during season of navigation. Looks after repairs in winter.
A. Proudfoot	do	Coulonge	1st April, 1865	1 00 per day	Actively employed 4 months. Looks after repairs in winter.
Hugh Corley	do	Crooked Chute .....	.....1870	.....	Employed 3 or 4 months each year.
A. McDougall	do	Joachims	6th Nov., 1871	300 00 per annum...	Employed about 4 months passing timber. Looks after repairs in winter.
Jos. Dufault	Boom Master	Dumoine	24th April, 1882	1 50 per day	Employed during timber season.
Hugh Grant	Deputy Slide Master.	do	12th do 1872	300 00 per annum...	Employed during navigation about 3 months. Will inspect works if required.
A. McEwen	do	Rocher Capitaine..	1st May, 1874	480 00 do	Employed during navigation about 3 months. Will inspect works if required.
F. Bélanger	Boom Master	Sault aux Recollets	22nd April, 1879	1 00 per day	Employed about 7 months each year.
J. Soulière	Deputy Slide Master.	Chaudière .....	.....1868	1 80 do	Paid during the season of navigation only, about 7 months. Attends to winter repairs.
A. H. Johnson	Boom Master	Cheneaux .....	.....1865	2 00 do	Paid during the season of navigation only, about 7 months. Attends to winter repairs.
<i>Newcastle District.</i>					
T. D. Belcher	Superintendent	Peterboro'	10th July, 1873	1,000 00 per annum...	
G. H. Giroux	Clerk Supt.'s Office.	do	1st do 1882	500 00 do	
Robert Armstrong	Slide Master	Chisholm's Rapids	1st do 1883	200 00 do	
John Ingram	do	Fenelon Falls	1st do 1883	200 00 do	
H. Deacon	do	Heely's Falls	1st do 1878	200 00 do	
W. H. Hall	do	Buckhorn	1st May, 1879	200 00 do	

APPENDIX No. 15.—Statement showing the Names, &c., of persons employed on the different Slides and Booms—*Concluded.*

Name.	Position.	Where Employed.	Date of Appointment.	Salary.	Remarks.
<i>Newcastle District—Con.</i>					
Nelson Simmons	Slide Master.....	Middle Falls	1st July, 1884	\$ cts. 200 00 per annum...	

* *Saguenay Works.*—In addition to the Superintendent, there are employed on the Saguenay Works 4 flagmen, at 70 cents per day each, during the passing of the logs through the slides, which lasts one or two months.

† *St. Maurice Works.*—Every year, during the timber-running season, the officers in charge of the various stations employ 25 to 30 men during three or four months, at the rate of 80 cents to \$1.10 per working day, inclusive of 40 to 60 cents per day per man paid for board to the Deputy Slide Masters and Boom Keepers; also one clerk and foreman at \$1 per day, two watchmen and one gate-keeper.

‡ *Ottawa River Works.*—In addition to the above officers, &c., there are employed during the running season one foreman on slide at \$1.50, and one assistant foreman at \$1.25, per day; also 25 to 30 laborers, at from \$1 to \$1.40 per working day.

APPENDIX No 16.

REPORT

ON

PUBLIC WORKS

IN

British Columbia,

FOR THE FISCAL YEAR ENDED 30TH JUNE, 1885.

BY

Hon. J. W. TRUTCH, C.M.G., Resident Agent.

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APPENDIX No. 16.

REPORT ON PUBLIC WORKS IN BRITISH COLUMBIA.

Ref. No. 61,085.

VICTORIA, B.C., 28th July, 1885.

SIR,—I beg to submit for your information the following report upon the public works in this Province carried on under my supervision during the fiscal year ended 30th June last, together with a tabular statement thereof.

DREDGING AND DREDGE VESSELS REPAIRS.

Dredging operations have been carried on in the past year in James' Bay, Victoria Harbour, up to the 15th June last, except for a period of 54 days, during the months of July and August, 1884, when the dredge was employed in deepening the berths alongside Messrs. Welch, Rithet & Co.'s outer wharf, Victoria Harbour, in response to their special request and by authority conveyed to me by Departmental letter No. 23,803, dated 6th March, 1884.

I enclose a tabular statement showing the amount of dredging done during the past fiscal year, and the cost per cubic yard of dredging and removing the dredged material. The result of this work has been the formation of a mooring berth in this part of Victoria Harbour about 300,000 square feet in extent, with a minimum depth throughout of 17 feet at ordinary low water.

Operations were suspended on the 15th June, as above mentioned, for the purpose of generally overhauling and repairing the vessels and machinery preparatory to this year's work, which it is intended will be directed towards excavating the upper portion of Victoria Harbour, as it is considered that all that can be usefully effected by the dredger in the locality where she has been at work during last year has now been done. The cost of the dredge vessels' repairs effected during the past year amounts to \$2,400.29, leaving an unexpended balance of \$599.71 of the sum appropriated for this purpose, which balance will, however, be about expended on additional material, such as buckets, bucket straps, links, reel bars, &c., which were ordered previous to 30th ultimo, and are now under construction, and are to be delivered this month.

SNAG BOAT.

The snag boat was employed from the 1st of July to the 1st of December, 1884, in removing snags from the Fraser and Nicomekle Rivers, and in replacing the buoys at the entrance to the Fraser River, which latter work was performed at the request and at the expense of the Department of Marine and Fisheries, and under the immediate direction of the agent of that Department in British Columbia, when, owing to the appropriation being nearly exhausted, the boat was laid up and the crew discharged.

Certain necessary repairs, alterations and additions have been made to the boat at a total cost of \$2,199.31, in pursuance of authority conveyed to me by Departmental letter No. 13,190, dated 13th March last, and the vessel is now in all respects in a very serviceable condition.

BRITISH COLUMBIA PENITENTIARY.

Pursuant to instructions received through the Chief Architect, plans and specifications were prepared in this office by Mr. Gamble for 32 additional cells. Tenders were called for, and Mr. Charles Hayward's being the lowest, it was accepted, and a contract entered into with him for the erection and completion of these cells and other works, upon the authority conveyed by telegram, from the Chief Architect, dated 13th October last, for the sum of \$17,498. Mr. Hayward completed this work in a satisfactory manner.

Certain extra work was also done by Mr. C. Hayward on this building, including a new felt and gravel roof over the Warden's quarters, two extra chimneys, and a temporary water-service, together with various necessary repairs, the cost of which extra work, together with the salary of Mr. Hay, superintending the work, brought up the total expenditure on this building, during the last fiscal year, to \$22,361.54.

NANAIMO POST OFFICE.

Mr. George H. Frost completed his contract for the internal fittings of the various offices and for the outhouses and fencing connected therewith in a satisfactory manner. Furniture, stoves, safes, &c., were supplied, and the offices rendered fit for occupation, according to the requirements of the different Departments, pursuant to authority conveyed to me by a telegram dated 28th May, 1884.

The total expenditure on this building and its fittings and furniture during the past fiscal year amounted to \$3,066.54.

QUARANTINE BUILDING.

A contract for the erection of this building at Albert Head, Vancouver Island was entered into with Mr. Charles Hayward, upon the authority contained in a telegram from the Chief Architect, dated 8th August, 1884, for the sum of \$7,973.00 and has been completed in a satisfactory manner in accordance with plan and specification. There remain, however, various requirements to be supplied before the building can be considered fit for occupation, such as outhouses, tanks or cisterns for storage of water, fencing, &c., as to which I have fully reported to you by letter of 20th December, 1884, and 14th February, 1885.

REPAIRS, FURNITURE, HEATING, LIGHTING, &c.: DOMINION PUBLIC BUILDINGS.

Various necessary repairs, additions and alterations to the Custom House and Post Office buildings at Victoria and New Westminster have been effected; fuel supplied to the different Departments and gas supplied to the Post Office Building, Victoria, pursuant to special directions and authorization conveyed to me by various letters from the Chief Architect, the total expenditure on this account having been \$2,966.96.

COTTONWOOD CANON, FRASER RIVER.

Upon authority conveyed by a telegram from the Chief Engineer dated, 26th September, 1884, Mr. F. T. Sinclair was continued in his contract for the removal of certain rocks obstructing navigation at this point, and he has satisfactorily fulfilled the additional work under his contract, regarding which I fully reported to you by letter dated 15th December last, at a total cost of \$4,779.74, for which an appropriation of \$5,000 was made, as I was advised by letter from Chief Engineer, N 10,344, of May, 1884.

COWICHAN AND COMOX RIVERS.

The work of improving the Cowichan River was continued under the supervision of Mr. W. C. Duncan, and a total expenditure of \$407.74 was made thereon, which

the sum of \$300.30 was expended in the removal of further drift timber from the Comox River, under Mr. Greaves' superintendence, making a total expenditure of \$708.04 on these two rivers, for which the sum of \$650.00 was authorized, this excess of expenditure having resulted from a misapprehension by Mr. Duncan of the sum to be spent on the Cowichan River.

SERPENTINE RIVER.

With regard to the contemplated improvements of this river, I fully reported to you in a letter dated 30th October last. Only \$45.40 was expended in connection with this river.

NICOMEKLE RIVER.

The removal of snags and drift timber and overhanging trees from this river, with a view of improving navigation, was commenced about 1st June last, and is still under progress, the snag boat being now employed for a few days in rendering aid in this work.

The improvement of the navigation of this river will be of a great benefit to settlers in this locality, facilitating the conveyance of produce and timber to market from the lands along the river, which are, in great part, Dominion lands.

PROPOSED CANAL, FRASER RIVER AND MUD BAY.

In compliance with instructions by letter from the Chief Engineer, No. 11,213, of 4th August last, I directed Mr. Gamble to make a survey of the route of a proposed canal between the Fraser River and Mud Bay.

A plan and section, together with a report and estimate of the costs, was forwarded to you with my letter dated 30th October, 1884.

ESQUIMALT GRAVING DOCK.

I transmit to you, under separate covering, letter of even date herewith, a progress report from Mr. Bennett, Resident Engineer on this work for the past year.

TELEGRAPH SERVICE.

Mr. District Superintendent Wilson's annual report on this service is transmitted by me, with covering letter of this day's date, to Mr. Superintendent Gisborne, to be laid before you.

I have the honour to be, Sir,

Your obedient servant,

JOSEPH W. TRUTCH,

Dominion Government Agent.

Sir H. L. LANGEVIN, K.C.M.G., C.B.,

Minister of Public Works, Ottawa.

BRITISH COLUMBIA—PUBLIC WORKS OF CANADA.

STATEMENT of Public Works carried on in the Province of British Columbia, during the Fiscal Year 1884-85.

Name of Work.	District or County.	Number and Date of Letter authorizing Expenditure.	Expenditure Authorized.	Expenditure or liability incurred from 30th June, 1884, to 30th June, 1885	Letters and Telegrams from the Dominion Government Agent to the Honorable the Minister of Public Works.
			\$ cts.	\$ cts.	
1. Dredging Victoria Harbour....	Vancouver Island.	Letter 10, 344, May, 1884.	13,000 00	12,004 05	Letters 30th Oct., 1884, 26th May, 1885. Telegram 5th May, 1885.
1a. Dredge vessels repairs....	.....	do do	3,000 00	2,400 29	Telegram 6th June, 1885.
1b. Dredging generally.....	.....	do do	4,000 00	.....	Letters 24th July, 29th Nov., 1884, 10th Feb., 21st May, 1885. Telegrams 20th Aug., 23rd Sept., 1884, 13th May, 1885.
Repairs to snag boat.....	.....	do 13,190, 13th Mar., '85	2,500 00	5,750 26	Letters 11th Dec., 1884, 13th April, 1885.
2. British Columbia Penitentiary.	New Westminster.	Tel., 18th July, 1884.....	1,000 00	22,361 24	Telegram 14th July, 11th Aug., 21st Aug., 23rd Aug., 15th Sept., 8th Sept., 24th Oct., 30th Oct., 11th Nov., 17th Nov., 21st Nov., 1884.
3. Nanaimo Post Office	Vancouver Island..	do 28th May, 1884.	3,000 00	3,066 54	Telegram 5th July, 27th Aug., 1884.
4. Quarantine Building	do ..	do 8th Aug., 1884.....	7,973 00	8,103 50	Letters 20th Dec., 1884, 14th Feb., 1885.
5. Repairs to furniture, heating and lighting, etc., Dominion Public Buildings.....	.....	Letter 25,691, 29th May, '84 19th Sept., '84	657 00	.....	Telegram 12th July, 4th Aug., 7th Aug., 27th Aug., 17th Oct., 8th Dec., 17th Dec., 20th Dec., 1884.
<i>Harbours and Rivers.</i>		do 46,286, 10th May, '84	505 06	.....	Letters 6th June, 11th June, 21st Oct., 1884, 26th June, 1885.
6. Cottonwood Canon	Cariboo District....	do 10, 344, May, 1884.	1,000 00	2,966 96	Letter 15th Dec., 1884. Telegram 25th Sept., 1884.
7. Cowichan and Comox Rivers ...	Vancouver Island..	do do	650 00	708 04	Telegram 22nd Aug., 1884.
8. Serpentine and Nicomélie Rivers.....	New West. District	do do	1,000 00	45 50	Letter 30th Oct., 1884. Telegram 8th June, 1885.
<i>General Repairs and Improvements, Harbours and Rivers.</i>					
9. Nimpkish River.....	Vancouver Island.	Letter 9,930, 28th Mar., '84	1,000 00	993 63	

River and Mud Bay Canal.....	New West. District.....	Tel., 3rd Aug., 1884. Letter 11, 213, 4th Aug., '84	600 00	573 70	Letters 21st July, 30th Oct., 1884.
11. Telegraph maintenance.....		Tels., 28th July, 18th Oct., 1884	.....	38,995 95	
11a. Port Angeles Cable.....		General authority	3,500 00	3,266 19	Letters 22nd July, 15th Sept., 4th Nov., 8th Dec., 10th Dec., 12th Dec., 1884 ; 16th Feb., 16th April, 6th May, 6th May, 14th May, 19th May, 19th May, 22nd May, 15th June, 1885. Telegrams 3rd July, 18th July, 31st Aug., 3rd Sept., 4th Sept., 15th Sept., 1884 ; 15th April, 15th April, 18th April, 1st May, 1st May, 2nd May, 4th May, 6th May, 6th May, 16th June, 17th June, 1886.
12. Esquimalt Graving Dock	Vancouver Island..			5,762 64	

JOSEPH W. TRUTCH,
Dominion Government Agent.

BRITISH COLUMBIA—VICTORIA HARBOUR IMPROVEMENTS.

TABULAR STATEMENT of the Work Performed by the "Dredge" in Victoria Harbour, from 1st July, 1884, to 30th June, 1885.

Month.	No. of Pnts.	Dredged Material.	Dredged Material, Cubic Yards.	Total Cubic Yards.	Cost. \$	Cost per Cubic Yard. cts.	Working Days.	Dredging Days.	Stormy Days.	Repairing Days.	Prevailing Wind.	Remarks
1884.												
July.....	97	Sand	3,060	.....	.....	cts.	26	18	2	6	.W.	Dredging at outer wharf, Victoria Harbour, for Welch, Rithet & Co.
August.....	107	do	3,220	.....	.....	.....	26	20	1	5	S.W.	
September...	286	Mud	8,960	6,230	2,057 78	0-3273	26	21	3	2	Variable	Moved into James' Bay, Victoria Harbour.
October.....	200	do	7,000	.....	.....	.....	27	17	.....	10	S.W.	
November...	278	do	9,830	.....	.....	.....	25	22	.....	3	N.	
December....	160	do	5,600	.....	.....	.....	26	15	8	3	N.	Unusually severe weather with snow and frost.
1885.												
January....	198	do	6,830	.....	.....	.....	27	17	1	9	N.	Boiler of "Georgie" inspected by Boiler Inspector, and certain repairs effected by his direction.
February....	224	Mud and clay.	7,840	.....	.....	.....	24	18	5	1	S.W.	
March.....	326	do	11,970	.....	.....	.....	26	24	.....	2	S.W.	
April.....	252	do	8,610	.....	.....	.....	25	19	2	4	S.W.	
May.....	246	do	8,610	.....	.....	.....	25	18	5	2	S.W.	
June.....	46	do	1,610	75,960	9,946 27	0.1309	26	4	6	16	S.W.	First part of month very windy; "Georgie's" feed-pump broke down; laid up on 16th for general overhauling.
Total....	2,390	.....	.....	82,240	12,004 05	0-1459	309	213	33	63		

Cost, including \$2,400.24 for repairs = \$14,404.34 = 0.175 cts. per cubic yard.

F. C. GAMBLE,
Assistant Engineer.

APPENDIX No. 17.

STATEMENT

SHOWING THE

GOVERNMENT PIERS AND WHARVES

IN THE PROVINCES OF

ONTARIO AND QUEBEC.

APPENDIX No 17.

Ref. No. 63,225.

GOVERNMENT PIERS AND WHARVES.
PROVINCE OF QUEBEC.

Names of Places.	Counties.	Total Length.	Width.	Height at end.	Block.		Depth of Water at end.		Date of Commencement of Work.	Remarks.
					Length.	Width.	E. L. W.	E. H. W.		
Etang du Nord, Magdalen Islands.....	Gaspé.....	Feet. 450	Feet. 28	Feet. 22	Feet.	Feet.	Feet. 12	Feet. 15	1881	
Ile aux Goélands, Magdalen Islands.....	do .....	.....	.....	.....	312	28	12	.....	.....	Commenced in 1884.
New Carlisle	Bonaventure.....	.....	Feet. 25	.....	50	25	.....	.....	1881	Work completed. Municipality granted \$2,500 towards its construction.
23 Newport.....	do .....	.....	.....	.....	.....	.....	.....	.....	.....
28 Carleton.	do	Feet. 225	Feet. 20	Feet. 17	90	20	4½	12½	1881	Pier completed. Municipality supplemented the Parliamentary grant with \$2,500 towards the work.
Matane.....	Rimouski.....	580	30	20	.....	.....	1½	15½	1878	In 1883, 100 feet of pilework were built on the east side of the channel.
Rivière Blanche.....	do	655	20	20	150	30	2	16	1876	This work was completed in 1883.
Rimouski.....	do	2,500	20	25	150	30	8	28	1853	This pier is kept in good repair by the Inter-colonial Railway.
Bic.....	do	1,040	20	.....	80	30	.....	.....	1884	414 feet under construction.
Trois-Pistoles.....	do	980	30	.....	.....	.....	.....	.....	1881	
Rivière du Loup.....	Témiscouata.....	1,641	30	42	384	50	14	34	1853	The extension to the block will soon be completed.
Anse du Portage.....	Chicoutimi	108	18	28	Slip. 104	24	4	21	1882	Completed in 1884.
Anse St. Jean.....	do	366	26	29	50	40	7½	24½	1875	Built in 1875-76-77 by Provincial Government and Municipality. Since 1879, the works have been continued and completed by the Dominion Government.
St. Alphonse de Ba-	do	445	24	49	77	55	29	47	1860	Built by Municipality in 1860; burnt in 1870; rebuilt by Government in 1875. This pier has lately been extended.
gotville	do .....	.....	.....	.....	.....	.....	.....	.....	.....
Chicoutimi	do	282	70	28	127	30	7	19	1873	Built in 1873 by the St. Lawrence Steam Co. In 1874 the Government took possession of it, and has kept it in repairs since 1880.

	1,219	28	42	237½	51	14	32	1852	Lighthouse at end of pier.
Rivière Ouelle.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Ste. Anne la Poca- tière.....	100	30	.....	.....	.....	.....	.....	1884	Built in 1884.
Sault au Cochon.....	158	35	42½	.....	.....	18	37	1880	Work finished in 1881.
Charlevoix.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
do.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Malbaie, cap à l'Aigle.....	500	30	46	108	70	24	44	1850	Completed in 1850
do.....	900	30½	36	80	45	15	34	1852	Pier completed in 1853.
Pic.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Eboulements.....	730	30	36	.....	.....	12	29	1831	This pier is not yet completed.
Baie St. Paul, Cap aux Corbeaux.....	200	30	.....	.....	.....	12	31	1874	Lighthouse on block.
Baie St. Paul Block.....	263	32	42	.....	.....	16½	33½	1881	Built with the Parliamentary grant by the inhabitants.
Ile aux Coudres.....	463	20	24	.....	.....	6	24	1875	A block 30 x 30 was built by the inhabitants; the remainder was built by the Government.
St. Jean, Port Joli.....	.....	.....	.....	.....	.....	.....	.....	1852	Completed in 1855. The superstructure was rebuilt in 1877-78.
L'Islet.....	1,104	31	34	48	51	7½	25½	1882	Work completed in October, 1884.
do.....	.....	.....	.....	.....	.....	.....	.....	.....	Completed in 1866. An addition was built in 1882.
Ile aux Grues.....	642	25	32	75	36	6	24	1882	Completed in 1848.
Grosse Ile, East Wh'f.....	345	25	36	.....	.....	10	31	.....	Commenced in 1879 and completed in 1882.
do West do.....	345	48	.....	.....	.....	.....	.....	.....	The extension of 100 feet to the Block is com- pleted.
St. Thomas.....	100	25	19	.....	.....	.....	25	1879	Built by Municipality by means of Municipal Loan Fund
Berthier (en bas).....	566	32	34	159	27	12	30	1882	Completed June, 1885.
St. Michel.....	1,091	30	27	50	37	6	22	.....	There are 6½ feet at half neap and 8½ feet at half spring tides. It was completed in 1882.
Bellechasse.....	.....	.....	.....	.....	.....	.....	.....	.....	The pier was built by the Municipality, and is owned by a company. The Government hav- ing built a lighthouse on it, the Department has kept the pier in repairs ever since.
St. François, I. d'Orl. Ste. Famille.....	400 460	30 30 & 25	18 24	90	30	.....	20	1882 1879	There is a lighthouse at the end of this pier. This wharf was repaired during the fiscal year.
St. Jean, I d'Orleans	651	30	.....	50	41	7	23	.....	The East Wharf is being repaired.
St. Laurent do	583	20	.....	104	32	7	23	.....	Dry at low water. There are, at high water (neaps), 7 feet; and high water (spring) 12 feet of water.
Quebec, Queen's Wh'f	175	66	.....	.....	.....	.....	.....	.....	Not completed.
Quebec Marine Hos- pital.....	{ E.W. 515 W.W. 560 70	24 30 20	9 22 16	.....	.....	.....	12	1881	Commenced in 1882 and completed in 1883.
Ecureuils.....	.....	.....	.....	.....	.....	.....	.....	.....	There are four ice pier at south side of Chenal du Moine. They were built by contract in 1883.
Nicolet.....	3,080	10	.....	.....	.....	.....	.....	.....	A wharf.
Yamachiche.....	1,460	12	10	98	43	5	.....	.....	Completed in 1884.
Chenal du Moine.....	30	20	16	.....	.....	.....	17	1883	.....
Berthier.....	.....	.....	.....	186	66	10	.....	.....	.....
Lavaltrie.....	183	20	17	54	33	10	.....	.....	.....
Lanoraie.....	.....	.....	23½	70	30	9½	.....	.....	.....

GOVERNMENT PIERS AND WHARVES—Continued.

PROVINCE OF QUEBEC—Concluded.

Names of Places.	Counties.	Total Length.	Width.	Height at end.	Block.		Depth of Water at end.		Date of Commencement of Work.	Remarks.
					Length.	Width.	E. L. W.	E. H. W.		
		Feet.	Feet.	Feet.	Feet.	Feet.	Feet.	Feet.		
Agnes, Lake Megantic	Compton.....	435	30	13	80	20	6	11	1882	
Piopolis do ..	do	165	12	13	20	20	6	11	1882	
Louderes do ..	do	190	18	14	30	20	6	11	1883	
L'Assomption. .	L'Assomption...	101	69	.....	.....	.....	.....	.....	.....
St. Sulpice.....	do	195	20	18	54	33	10	.....	.....
St. Timothée.....	Beauharnois .....	.....	.....	.....	100	24	7½	10½	1882	
St. Anne de Bellevue	Jacques Cartier.	120	24	18	.....	.....	9	13	1885	This wharf will be completed shortly. It is being done by contract.
23 Lacolle.....	Missisquoi	100	100	16	.....	.....	8	14	1884	Built in 1884 by contract.
Cedars.....	Soulanges . ....	.....	.....	.....	115	34	7½	11½	1881	This landing pier was built in 1881.
St. Dominique.....	do	64	24	.....	73	24	15	17	1880	do do
Coteau Landing.....	do	896	12	12	200	24	8	12	.....	The superstructure was renewed in 1885.
St. Zotique.....	do	1,126	12	14	100	24	9	13	1882	This pier will be completed in 1885.
St. Anicet.....	Huntingdon	34 & 18	.....	.....	.....	.....	.....	.....	1862	On the south shore of Lake St. Francis.

PROVINCE OF ONTARIO.

Names of Harbours.	Counties.	Lakes.	Length.		Revelment or Pilework.	Breakwater.	Total Wharfrage.	Width.	Depth of Water at Entrance.		Expenditure by Government, Local Companies, Municipal Authority or Harbour Commissioners.	Remarks.
			North or East Pier.	South or West Pier.					F. L. W.	E. H. W.		
			Feet.	Feet.	Feet.	Ft.	Feet.	Feet.	Feet.	Feet.		
L'Original	Prescott	River Ottawa.	.....	.....	.....	.....	1,354	.....	7	21	Local Municipality and Government.	Built in 1858. Portion above water reconstructed in 1883-84.
Cobourg	West North- umberland.	Lake Ontario.	1,590	1,650	1,050	.....	4,290	.....	18 E. P. 22 W. P.	22 } 26 }	Company, Town Council, and Gov- ernment.	These works were commenced in 1829. An extension of 100 feet is now under construction.
Port Hope	East Durham..	do ..	1,471	1,641	6,663	300	9,774	20-30	12	16	Company, Commis- sioners and Gov- ernment.	The works were commenced in 1832. The superstructure of the breakwater is not completed.
Newcastle	West Durham.	do ..	880	600	730	.....	2,210	15-30	12	16	.....
Port Darlington.	do ..	do ..	1,180	1,620	.....	.....	2,800	20-30	12	16	Company, Commis- sioners and Gov- ernment.	
Oshawa	South Ontario.	do ..	.....	.....	.....	.....	815	20-30	11	15	Company and Gov- ernment.	
Whitby	do ..	do ..	390	645	1,760	.....	2,795	20-30	11	15	Harbour Commis- sioners and Gov- ernment.	The works were commenced in 1843.
Pickering	do ..	do ..	685	835	1,460	.....	1,460	15-30	12	16	Township, Harbour Commissioners and Government.	
Toronto (Queen's Wharf).	York	do ..	.....	.....	.....	.....	1,091	30	12	16	Government and Harbour Commis- sioners	This wharf was commenced in 1833.
Toronto Harbour Improvements	do	do ..	.....	.....	11,380	.....	.....	11	.....	.....	Government	
Oakville	Halton	do ..	610	500	422	.....	1,662	15-60	7	11	William Chisholm and Government.	The works were commenced in 1829.
Burlington Pier	Wentworth ..	do ..	2,307	2,710	.....	.....	5,017	20-40	14	18½	Government	do These piers form the entrance of the Broad Creek of the Wel- land Canal.
Port Maitland ..	Monck	Lake Erie	1,800	1,500	.....	.....	3,000	.....	10	13	.....	These works were commenced in 1833-34.
Port Dover	South Norfolk.	do ..	1,020	1,020	.....	.....	2,040	.....	10	13	Government and Har- bour Commission- ers.	

GOVERNMENT PIERS AND WHARVES—Continued.

PROVINCE OF ONTARIO—Conclude.

Names of Harbours.	Counties.	Lakes.	Length.		Revetment or Pilework.	Breakwater.	Total Wharfrage.	Width.	Depth of Water at Entrance.		Expenditure by Government, Local Companies, Municipal Authority or Harbour Commissioners.	Remarks.
			North or East Pier.	South or West Pier.					E. L. W.	E. H. W.		
Port Burwell.....	East Elgin.....	do	570	850	1,100	.....	2,520	15-30	9	12	Harbour, Company and Government.	The works were commenced in 1837.
Port Bruce.....	do	do	700	750	.....	.....	1,450	.....	.....	14½	do	These works were commenced in 1827.
Port Stanley.....	do	do	1,150	1,870	720	.....	3,740	.....	11½	.....	Government Commis- sioners, Govern- ment; also by the London and Port Stanley Railway Company.	
24 Morpeh.....	do	do	400	500	.....	.....	900	.....	10	13	E. Hill, East Pier, and Government West Pier.	The west pier is completed.
Rondeau.....	Kent.....	do	780	1,080	2,000	.....	3,860	30-40	18	21	Government.....	These works were commenced in 1844.
Kingsville.....	South Essex...	do	880	440	750	.....	2,070	20-50	12	15	Municipal Authority and Government.	
Bayfield	South Huron.	Lake Huron ..	82	875	.....	.....	1,695	20-30	11	14½	Government and Township of Han- ley.	The piers were repaired in 1884-85
Goderich.....	West Huron ...	do	1,320	1,520	720	.....	3,560	30	14	17½	Government.....	A harbour of refuge.
Port Albert.	do ..	do	290	120	.....	.....	410	20	5	8½	Government	
Kincardine	West Bruce...	do	905	880	1,905	.....	3,690	30	12	15½	Government	
Inverhuron	do ..	do .....	.....	.....	.....	.....	450	15-30	16	19½	Municipality.	Built in 1856 and 1857.
Port Elgin.....	do ..	do	380	.....	.....	1560	1,330	20	12	15½	Government and Lo- cal Company.	The extension to the breakwater (950 feet) is under construction
Southampton & Chantry Island	do ..	do	820	.....	.....	4687	5,577	20-30	14	17½	The Municipality, aided by a Govern- ment grant, built the pier. The breakwater, &c., was built by the Government.	The Government has the control of the harbour. Southampton piers were commenced in 1858, and those of Chantry Island in 1859.

Wistonia.....	North Grey....	Georgian Bay.	.....	.....	1,335	20	14	17½	Government.....	Built in 1883.
Big Bay	do	do .....	.....	.....	452	14-25	11½	15	Local Authority and Government.	Built in 1877 and 1881.
Owen Sound	do	do .....	.....	.....	2,470	20	14	17½	Town Council and Government.	This work was built in 1881-82.
Meaford	East Grey.....	do .....	.....	895	2,080	20-30	14	17½	Municipal Council and Government.	The works were commenced in 1856.
Torubury	do	do .....	.....	.....	420	15-30	12	15½	Municipality and Government.	
Collingwood.....	North Simcoe.	do .....	.....	.....	3,190	20-24	11	14½	Government and Northern Railway Co.	The breakwater, 790 feet in length, was built in 1874-75. An extension to the east pier, 600 feet in length, is under construction.
Port Arthur	Algoma	Lake Superior	640	2,640	20-30	14	Government	Pier built in 1870. The break- water, 2,000 feet in length, is under contract.

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APPENDIX No. 18.

TABULAR STATEMENTS

SHOWING THE DATES OF THE

OPENING AND CLOSING OF NAVIGATION

AT THE

PRINCIPAL PORTS OF CANADA,

ON THE SEABOARD, AND ON THE GULF, RIVER, AND
LAKES OF THE ST. LAWRENCE;

ALSO,

PORTS WHICH ARE ALWAYS OPEN.

三二

Ref. No. 63,224.

APPENDIX No. 18.

No. 1.—STATEMENT of the Closing of Navigation in the Fall of 1884, and of the Opening in the Spring of 1885.

Name of Port.	Location.	Closed in 1884.	Opened in 1885.	Remarks.
Charlottetown, P.E.I.	Gulf of St. Lawrence	Dec. 20...	April 22...	No ice visible in the harbour on the 18th Dec. On the 19th a heavy gale was blowing from E.N.E., and subsequently veered to N.W. The weather became intensely cold, and ice made rapidly in the river. On the 25th the harbour was closed; but the steamer "Princess of Wales" having arrived from Pictou, at the entrance of the harbour, cut her way through the ice to the dock. On the 22nd April, 1885, the above vessel left for Pictou, N.S.
Georgetown	do	... Jan. 26, '85	do 24...	The ice in the harbour was broken up on the 24th April, but the outside portion of Cardigan Bay being closed with heavy sea ice, extending from Panmure Light to the S.E. end of Boughton Island, prevented the steamer from getting out. This blockade moved off on the 27th April. "The Northern Light" having left her winter quarters on or about the 1st March, was, until the 28th April, thus detained.
Pictou,	N.S.	... Dec. 24...	April 21...	Ferry steamer "Mayflower" continued her trips across the harbour until the 23rd Jan., 1885, and resumed her trips on the 23rd April, 1885. First arrival in spring of 1885 was on the 23rd April, from Charlottetown.
Sydney	do	... Jan. 19, '85	May 4...	
Gaspe Basin,	P.Q.	... Dec. 8...	do 16...	It was possible for a vessel to leave port on the 10th or 12th Dec.
Percé	do	... do 1...	do 1...	
Campbellton,	N.B.	... do 12...	do 6...	
Timouski,	P.Q.	River St. Lawrence.. Nov. 9...	do 11...	SS. "Circassian" was the last vessel outwards in the fall; and the same steamer was the first inwards in the spring.
Tadousac	do	... do 18...	do 15...	These dates refer to Saguenay River. The port of Tadousac is open all winter.
Quebec	do	... Dec. 12...	April 29...	Coasting schooners from the Gulf arrived on the 29th April.
Sorel	do	River Richelieu do 11...	do 24...	Steamer "Cultivateur" arrived 11th Dec, and steamer "Terrebonne" left 24th April.

No 1.—STATEMENT of the Closing of Navigation, &c.—Continued.

Name of Port.		Location.	Closed in 1884.	Opened in 1885.	Remarks.
St. John's	do	River Richelieu.....	Nov. 29...	do 20...	These are the dates of the last report inwards from Lake Champlain in 1884, and the first in the spring of 1885; the ice forming in the river in the autumn and breaking up in the spring within a day or two of these dates.
Montreal, Kingston,	P.Q. Ont	River St. Lawrence.. Lake Ontario	Dec. 18... do 31...	May 5... April 28...	The records of 18 years do not show such a late opening.
Belleville	do	do	do 12...	do 19...	The bay was frozen over for 12 days. The opening of navigation was the latest on record since the year 1836.
Port Hope	do	do	do 12...	do 15...	
Toronto	do	do	do 19...	do 25...	
Port Stanley	do	Lake Erie.....	do 19...	do 21...	The creek had been frozen over several times during the month of Dec., but it always opened again. On the 19th Dec. the fishing tug "Mary" made her last trip to the nets. Creek frozen over that night, and remained frozen. 21st April, propeller "W. Alderson" arrived reporting lots of ice in the lake near the harbour.
Port Dover	do	do	do 11...	do 28...	These dates show the first arrival and last departure of vessels but the ice was out of the harbour in the middle of April.
Windsor	do	Detroit River.....	do 17...	Jan. 14...	The dates given are of vessels going to or arriving from distant ports. Navigation is open to Detroit, U.S., at all times.
Sarnia	do	Lake Huron.	do 25...	April 14...	The steadiest and hardest winter experienced in this locality since this was a port, but not the latest opening of navigation.
Goderich	do	do	do 15...	May 6...	
Kincardine	do	do	Nov. 24...	do 6...	
Owen Sound	do	Georgian Bay.....	Dec. 1...	do 3...	
Collingwood	do	do	do 31...	do 7...	
Sault Ste. Marie	do	Lake Superior	do 10...	do 6...	Navigation closed somewhat earlier than usual, and winter was a very severe one.
Port Arthur	do	do	do 14...	do 13...	
Winnipeg	Man	Red River	Nov. 1...	April 25...	

No. 2.—STATEMENT showing some of the ports in the Dominion which are open to Navigation the whole year.

Name of Port.	County.	Province.	Depth of Water at Low Water,	Remarks.
Annapolis	Annapolis	Nova Scotia	15 to 20	In very severe winters thin ice forms, but screw steamers could always enter.
Barrington	Shelburne	do	12 to 20	At anchorage. Wharves dry at low water.
Digby	Digby	do	18	About 10 feet at end of steamboat pier.
Halifax	Halifax	do	20 to 30	At wharves. 70 to 180 feet in harbour.
Liverpool	Queen's	do	7	On bar. At Brooklyn 24 feet.
Lockport	Shelburne	do	8	
Lunenburg	Lunenburg	do	12	
Parraboro'	Cumberland	do .....	.....	Dry in harbour at low water.
Shelburne	Shelburne	do	40 to 60	
Yarmouth	Yarmouth	do	13	
St. Andrews	Charlotte	New Brunswick	14	In inner harbour.
St. John	St. John	do	20	At entrance of harbour. 60 feet in harbour.
St. Stephen	Charlotte	do	6	30 feet at the ledge, 4 miles below the town.
Tadoussac	Saguenay	Quebec	30 to 50	
Windsor	Essex	Ontario .....	.....	Ferry boats cross Detroit River all winter.

* See remarks respecting Tadousac Harbour in Appendix No. 8 of general report 1867-1882.

Victoria, Nanaimo, Burrard Inlet and all other ports in British Columbia, up to Skeena River, are always open. New Westminster is liable to be closed 7 to 15 days. See telegram No. 34,027, from Hon. J. W. Trutch, 3rd May, 1883.

Tides in British Columbia.—At Victoria ordinary springs rise from 7 to 10 feet, neaps 5 to 8 feet; at Nanaimo ordinary springs rise 14 feet, neaps 11 feet; at Westminster ordinary springs rise 7 feet, neaps 4 feet; at Hastings, Burrard Inlet, ordinary springs rise 16 feet, neaps 12 feet; at Port Moody ordinary springs rise 10 to 12 feet, neaps 5 to 6 feet. See telegram from Hon. J. W. Trutch, 25th Oct., 1883, No. 39,810.

APPENDIX No. 19.

COMPARATIVE STATEMENT

OF THE

NUMBER OF VESSELS,

THEIR

AGGREGATE TONNAGE,

AND THE

NUMBER OF MEN EMPLOYED

WHICH HAVE

ARRIVED FROM SEA,

AT THE PORTS OF HALIFAX, N.S., ST. JOHN, N.B., CHARLOTTETOWN,
P.E.I., QUEBEC AND MONTREAL, PROVINCE OF QUEBEC,
AND VICTORIA, B.C., FROM 1868 to 1884.

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Ref. No. 63,227.

APPENDIX No. 19.

STATEMENT of the Number of Vessels and their Aggregate Tonnage, and Number of Men employed, which have arrived *from Sea*, to 30th June each year since Confederation, at the Ports of Halifax, N.S. ; St. John, N.B. ; Charlottetown, P.E.I. ; Quebec, Montreal, P.Q., and Victoria, B.C.

Port.	Year.	No. of Vessels.	No. of Tons.	No. of Men.	Remarks.
Halifax,	N.S.	1868	1,089	274,089	Nova Scotia entered Confederation on 1st July, 1867.
		1869	1,292	288,682	
		1870	1,251	311,357	
		1871	1,266	302,338	
		1872	1,387	363,847	
		1873	1,384	372,985	
		1874	1,074	316,955	
		1875	1,215	354,274	
		1876	1,067	374,705	
		1877	1,076	491,638	
		1878	917	473,423	
		1879	959	391,448	
		1880	1,070	529,663	
		1881	1,157	601,293	
		1882	1,168	575,529	
		1883	1,079	540,583	
		1884	1,093	565,862	
		19,544	7,131,586	325,199	
St. John,	N.B.	1868	993	374,429	New Brunswick entered Confederation on 1st July, 1867.
		1869	1,423	502,083	
		1870	1,613	471,297	
		1871	1,575	442,837	
		1872	1,562	420,860	
		1873	1,470	406,442	
		1874	1,320	480,473	
		1875	1,131	377,614	
		1876	994	376,939	
		1877	1,115	421,060	
		1878	1,206	396,330	
		1879	1,055	376,919	
		1880	1,424	462,880	
		1881	1,444	444,546	
		1882	1,536	493,783	
		1883	1,632	468,743	
		1884	1,904	484,471	
		23,497	7,409,976	207,404	
Charlottetown, P.E.I.		1874	173	51,478	Prince Edward Island entered Confederation on the 1st July, 1873.
		1875	196	57,609	
		1876	184	68,521	
		1877	350	79,893	
		1878	288	65,716	
		1879	429	79,330	
		1880	255	64,281	
		1881	288	64,322	
		1882	196	50,038	
		1883	125	41,282	
		1884	184	50,544	
		2,667	673,024	27,808	

STATEMENT of the Number of Vessels and their Aggregate Tonnage, and Number of Men employed, which have arrived *from Sea*, to 30th June, &c.

Port.	Year.	No. of Vessels.	No. of Tons.	No. of Men.	Remarks.
Quebec,	Que	1868	910	628,866	Quebec entered Confederation on 1st July, 1867.
		1869	952	640,087	
		1870	1,091	756,078	
		1871	844	623,474	
		1872	1,002	783,316	
		1873	917	734,937	
		1874	971	789,433	
		1875	854	639,235	
		1876	949	744,252	
		1877	983	855,101	
		1878	910	802,930	
		1879	642	602,490	
		1880	657	665,688	
		1881	783	802,186	
		1882	642	676,327	
		1883	682	737,059	
		1884	693	767,395	
			13,492	12,258,404	
				337,907	
Montreal	do	1868	253	160,553	
		1869	261	168,824	
		1870	340	228,121	
		1871	346	247,313	
		1872	435	311,567	
		1873	422	307,453	
		1874	384	306,782	
		1875	354	297,363	
		1876	337	285,609	
		1877	303	279,197	
		1878	325	309,261	
		1879	300	349,712	
		1880	374	427,057	
		1881	400	484,028	
		1882	347	373,412	
		1883	318	405,496	
		1884	360	493,799	
			5,541	5,435,547	
				178,575	
Victoria,	B.C	1872	292	131,696	British Columbia entered Confederation on the 20th July, 1871.
		1873	408	169,414	
		1874	401	156,197	
		1875	453	193,481	
		1876	524	302,199	
		1877	523	312,155	
		1878	488	358,924	
		1879	514	377,705	
		1880	471	356,649	
		1881	467	338,996	
		1882	488	398,034	
		1883	702	501,963	
		1884	823	511,203	
			6,554	4,099,616	
				140,027	

APPENDIX No. 20

STATEMENT

SHOWING THE

NUMBER AND TONNAGE OF VESSELS CONSTRUCTED

AT THE PRINCIPAL

SHIP BUILDING PORTS IN CANADA,

FROM 1868 TO 1884, (INCLUSIVE).

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STATEMENT showing the Number and Tonnage of Vessels constructed at the principal Ship Building Ports of Canada,
from 1868 to 1884.

(Compiled from Trade and Navigation Returns.)

Year.	NOVA SCOTIA.										NEW BRUNSWICK.													
	Halifax.			Pictou.			Windsor.			Yarmouth.			St. John.			Chatham.			Dorchester.					
	Sailing.		Number.	Sailing.		Number.	Sailing.		Number.	Sailing.		Number.	Sailing.		Number.	Sailing.		Number.	Sailing.		Number.			
	Tonnage.	Number.		Tonnage.	Number.		Tonnage.	Number.		Tonnage.	Number.		Tonnage.	Number.		Tonnage.	Number.		Tonnage.	Number.		Tonnage.	Number.	
1868	...	...	...	9	1,734	...	3	2,510	...	4	1,638	...	42	12,407	...	15	4,690	...	2	1,122	...
1869	4	723	...	3	861	...	15	5,047	...	2	712	...	3	222	...	6	4,536	...	2	1,371	...			
1870	1	4	...	6	2,224	...	17	6,566	1	35	9,248	...	2	879	...	12	4,341	...	3	1,701	...			
1871	1	11	32	12	4,207	...	16	6,641	...	21	11,672	...	4	157	...	2	72	...	3	1,881	...			
1872	...	...	55	13,157	...	15	5,899	...	18	11,998	...	5	421	...	69	29,493	...	...	7	4,036	...
1873	...	...	41	15,196	...	11	4,832	...	17	13,903	...	6	687	...	58	32,494	...	...	5	2,655	...
1874	1	9	45	18,368	...	10	4,780	...	23	11,447	...	27	21,066	...	2	37	...	...	6	3,862	...	
1875	...	...	28	9,163	...	11	5,362	...	24	15,777	...	24	19,864	...	61	38,820	...	...	7	5,180	...
1876	1	21	35	6,607	...	15	4,612	...	22	12,146	...	27	18,605	...	1	100	...	...	35	...	...	
1877	2	8	28	3,449	...	18	10,750	...	35	10,750	...	201	41	22,731	...	13	3,175	...	7	4,568	...			
1878	2	10	39	5,936	...	9	2,269	...	12	9,421	...	1	68	...	...	11	3,158	...	4	3,759	...	
1879	...	...	16	3,144	...	3	1,564	...	13	12,857	...	24	19,001	...	26	20,463	...	...	4	1,906	...
1880	2	22	16	2,164	...	2	5,910	...	12	9,916	...	6	12	7,482	...	3	23	...	3	2,693	...			
1881	3	63	18	1,421	...	8	3,427	...	12	10,856	...	2	256	...	30	12,470	...	...	1	1,156	...	
1882	3	44	15	3,862	...	4	2,988	...	11	7,482	...	2	298	...	45	14,881	...	...	1	1,240	...	
1883	34	4,175	...	9	5,985	...	3	40	4,562	...	1	32	...	37	11,835	3	1,791	...		
1884	25	1,863	...	1	2,337	...	54	7,027	...	2	21	...	54	15,606	4	994	...		
	4	3,118	...	12	4,252	...	1	45	...	52	18,944	2	392	...		
	16	192	447	102,375	6	56	116	52,564	5	322	254	151,727	40	3,855	860	387,799	14	382	134	32,716	...	63	40,216	...

STATEMENT showing the Number and Tonnage of Vessels constructed at the principal Ship Building Ports of Canada, from 1868 to 1884—*Concluded.*

Year.	PRINCE EDWARD ISLAND.				QUEBEC.				MONTREAL.				ST. CATHARINES.				TORONTO.				KINGSTON.				
	Charlottetown.				Quebec.																				
	Steam.		Sailing.		Steam.		Sailing.		Steam.		Sailing.		Steam.		Sailing.		Steam.		Sailing.		Steam.		Sailing.		
	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	Number.	Tonnage.	
1868	.....	.....	.....	.....	2	344	56	23,649	2	327	8	701	.....	.....	.....	.....	1	53	1	50	.....	3	535	14	1,604
1869	.....	.....	.....	.....	3	262	61	28,767	5	443	18	2,028	.....	.....	.....	.....	2	33	1	32	.....	3	210	3	536
1870	.....	.....	.....	.....	2	164	39	17,932	3	77	11	1,210	.....	.....	.....	.....	2	109	2	1,016	.....	3	270	11	1,501
1871	.....	.....	.....	.....	6	352	51	17,955	7	374	13	1,643	.....	.....	.....	.....	2	182	2	1,052	.....	3	625	1	37
1872	.....	.....	.....	.....	5	873	50	11,109	1	43	9	1,539	.....	.....	.....	.....	1	48	7	1,052	.....	3	624	5	537
1873	.....	.....	.....	.....	4	83	54	18,581	3	332	5	1,197	.....	.....	.....	.....	.....	.....	.....	.....	.....	9	746	11	1,802
1874	.....	.....	.....	.....	5	210	47	20,855	4	333	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	9	746	11	1,802
1875	1	149	90	25,882	8	1,426	57	19,280	4	814	6	1,453	.....	.....	.....	.....	.....	.....	.....	.....	.....	9	746	11	1,802
1876	2	212	88	20,982	7	734	45	21,104	8	1,392	44	4,363	4	356	5	1,069	.....	.....	.....	.....	.....	9	746	11	1,802
1877	.....	.....	.....	.....	7	395	41	19,326	10	660	39	3,268	4	327	1	87	2	474	4	201	.....	3	102	3	1,240
1878	.....	.....	.....	.....	57	16,486	67	15,373	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	102	3	1,240
1879	2	49	26	7,395	8	568	21	7,560	4	493	5	569	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	102	3	1,240
1880	.....	.....	.....	.....	6	271	16	4,503	3	318	3	332	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	102	3	1,240
1881	.....	.....	.....	.....	7	506	16	4,503	3	31	10	1,193	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	102	3	1,240
1882	.....	.....	.....	.....	6	271	22	5,489	3	124	12	2,023	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	102	3	1,240
1883	.....	.....	.....	.....	4	417	18	3,206	3	326	18	2,992	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	102	3	1,240
1884	1	189	21	5,563	3	688	16	2,465	3	54	7	1,051	.....	.....	.....	.....	.....	.....	.....	.....	.....	3	102	3	1,240
	6	599	478	122,610	87	7,643	660	238,503	71	6,811	210	25,804	41	6,998	40	11,897	39	2,401	36	3,550	49	4,977	83	12,927	

N.B.—For number and tonnage of sea-going vessels built in Quebec from 1787 to 1867, see Appendix No. 52 of Report of Commissioners of Public Works, published in 1867.—G. F. B.

APPENDIX No. 21.

NUMBER OF SEA-GOING AND COASTING VESSELS WRECKED

ON THE

SEA COAST,

AND IN THE

GULF, RIVER & LAKES of the ST. LAWRENCE,

IN THE

DOMINION OF CANADA,

FROM 1868 TO 1884 (INCLUSIVE).

COMPILED FROM REPORTS OF DEPARTMENT OF MARINE AND
FISHERIES.

APPENDIX No. 21.

Ref. No. 63,430.

PART 1st.—SEA-GOING AND COASTING VESSELS.

(a) STATEMENT of Wrecks and Casualties which have occurred in Canadian Waters to Foreign and Canadian Sea-going Vessels, from 1868 to 1884.

(Compiled from the Yearly Reports of the Minister of Marine and Fisheries.)

Year.	Place where Wreck or Casualty occurred, and No. of Vessels wrecked or damaged at each place.										Description of Vessels wrecked or damaged, or No. of each description.						Nature of Casualty and No. of Vessels.						
	Newfoundland.	Anti costl Is-land.	Magdalen Is-lands.	Prince Edward Island Coast.	New Brunswick Coast.	Nova Scotia Coast	Gulf St. Lawrence.	Quebec to Gulf.	River St. Lawrence to Mon-treal.	Quebec to Mon-treal.	Steamers.	Ships.	Barques.	Brigs.	Brigantines.	Schooners.	Stranded.	Sunk or Found-ered.	Burnt.	Collision.	Abandoned.	Other causes.	
June 1, 1868, to Dec 31, 1869...	4	4	9	(b) 25	7	36	1	3	9	33	13	7	21	83	6
1870	4	5	2	1	9	51	4	30	8	8	15	23	8	13	47	.....	95	5	6	15	1	9
1871	6	1	1	1	11	55	11	37	2	5	20	25	7	22	46	.....	90	11	1	13	1	5
1872	2	8	4	1	19	40	16	31	1	6	13	43	4	10	46	.....	90	11	1	8	2	10
1873	5	3	37	8	28	116	11	26	3	18	15	39	12	21	132	.....	192	10	3	11	1	20
1874	5	7	6	3	23	71	6	62	2	30	21	40	4	18	72	.....	114	5	4	28	1	33
1875	8	6	8	7	33	87	14	30	3	19	15	35	4	27	96	.....	146	5	5	26	1	13
1876	11	4	9	21	33	109	16	38	10	24	14	49	6	33	125	.....	152	9	3	47	3	37
1877	8	8	7	9	29	104	4	68	12	28	13	49	2	25	122	.....	145	8	8	57	.....	21
1878	8	7	4	7	33	76	14	31	10	20	8	43	3	18	98	.....	123	5	5	30	.....	17
1879	11	2	5	17	25	118	10	32	13	23	13	28	3	23	143	.....	169	4	5	34	1	20
1880	7	11	3	11	16	88	24	29	17	27	13	49	8	16	93	.....	113	7	5	39	5	37
1881	4	1	5	8	22	68	12	13	5	23	3	30	.....	11	61	.....	76	4	6	54	.....	18
1882	9	2	2	8	33	92	13	19	10	29	5	28	3	21	103	.....	125	3	4	28	1	27
1883	6	8	6	9	21	127	11	22	10	33	13	37	.....	25	112	.....	138	10	8	18	3	43
1884	4	4	4	5	19	62	8	4	1	17	1	20	3	14	56	.....	81	2	5	11	4	8
Grand Totals	102	81	103	116	363	1,279	181	498	103	313	190	571	80	304	1,373	.....	1,852	94	68	389	24	318

(b) The Vessels shown as having been wrecked or damaged in Canadian Waters to Foreign and Canadian Sea-going Vessels, from 1868 to 1884, prepared by G. F. Baillairgé, D.M.P.W.

STATEMENT of Wrecks and Casualties which have occurred in Canadian Waters to Foreign and Canadian Sea-going Vessels from 1868 to 1883.

Year.	Approximate Loss.				Total No. of Wrecks and Casualties.	Remarks.
	When Total.		When Partial.			
	No. of Vessels.	Amount.	No. of Vessels.	Amount.		
June 1, 1869, to Dec. 31, 1869...					86	Nature of casualties not ascertained; amount of losses not recorded.
Jan. 1 to Dec. 31, 1870.....	53	266,946	61	49,720	114	
1871.....	58	575,544	67	84,614	125	On 1st April, s.s. "Atlantic" was stranded at Marr's Head, N.S.; 515 lives lost; loss \$550,000.
1872.....	58	847,000	64	314,595	122	On 6th July, s.s. "City of Washington" was stranded at Gull Rock Bar, N.S.; no lives lost;
1873.....	91	2,002,210	143	278,692	237	loss \$450,000.
1874.....	65	669,375	120	270,648	185	On 6th Sept., s.s. "Medway" was stranded on Newfoundland coast; 7 lives lost; loss \$200,000.
1876.....	75	1,040,794	121	307,154	196	On 24th Aug., s.s. "Saltwell" foundered off Scatterie, N.S.; 6 lives lost; loss \$150,000.
1877.....	87	497,490	164	197,562	251	On Nov., s.s. "Pictou"; never heard of; all on board lost; loss \$45,000.
1878.....	61	527,950	178	232,073	239	A portion of the partial loss could not be ascertained.
1879.....	72	850,250	118	97,918	190	On 22nd July, s.s. "Lake Megantic" stranded on Anticosti Island; no lives lost; \$200,000.
1880.....	73	675,600	160	169,803	233	
1881.....	71	1,192,100	135	151,288	206	On 8th Oct., s.s. "Corean" stranded on Point St. Michel, River St. Lawrence; no lives lost; partial loss \$200,000.
1882.....	46	608,810	82	364,155	128	
1883.....	69	917,555	119	215,051	188	On 3rd Sept., barque "Brittania" wrecked on Sable Island, and 14 lives lost.
1884.....	91	792,900	133	199,189	224	On 3rd April, str. "Daniel Steinman" wrecked near Sambro Light, and 123 lives lost; loss \$230,000.
1884.....	58	1,202,710	53	175,031	111	
Grand Totals.	1,031	11,867,234	1,718	3,107,493	2,835	

PART 2ND.—VESSELS NAVI

STATEMENT of Wrecks and Casualties to Vessels navigating

Year.	Place where Wreck or Casualty occurred, and No. of Vessels wrecked or damaged at each place.						Description of Vessels wrecked or damaged, and No. of each description				Nature of Casualty and No. of Vessels.				
	Lakes.				Welland Canal.	Lake Ontario to Montreal.	Steamers.	Propellers.	Schooners, &c.	Barges.	Stranded.	Sunk or Foundered.	Burnt.	Collision.	Other Causes.
	Ontario.	Erie.	Huron.	Superior.											
July 1, 1868, to Dec. 31, 1869...	2	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Jan. 1 to Dec. 31, 1870.....	26	21	11	.....	.....	5	5	7	48	3	.....	.....	.....	.....	.....
1871.....	16	6	16	.....	.....	3	6	5	30	.....	.....	.....	.....	.....	.....
1872.....	24	12	8	2	3	6	10	7	32	6	39	6	2	4	.....
1873.....	9	2	3	2	.....	2	8	.....	8	2	9	2	4	.....	.....
1874.....	10	9	4	.....	1	3	7	.....	19	1	15	5	4	.....	.....
1875.....	9	5	5	1	.....	1	12	.....	9	.....	12	1	4	4	.....
1876.....	2	4	2	.....	.....	1	3	1	5	.....	6	1	1	1	.....
1877.....	4	12	3	1	.....	2	4	1	14	3	17	2	1	1	.....
1878.....	8	7	10	.....	.....	1	16	.....	10	.....	11	5	7	1	.....
1879.....	6	4	8	.....	1	4	10	.....	10	3	11	3	3	5	.....
1880.....	22	9	9	1	.....	14	18	.....	27	10	28	9	6	4	.....
1881.....	12	2	4	1	2	11	14	.....	14	4	10	8	5	4	.....
1882.....	10	11	8	.....	.....	6	9	.....	23	3	13	6	6	5	.....
1883.....	6	.....	8	2	1	17	23	.....	12	9	22	9	6	3	.....
1884.....	2	3	.....	4	1	5	9	.....	4	2	6	3	2	3	.....
Grand Totals.	168	123	99	14	9	81	154	21	265	46	204	60	51	35	32

GATING ON INLAND WATERS.

on Inland Waters of Canada, from 1868 to 1884.

Approximate Loss.				Total Number of Wrecks or Casualties.	Remarks.
When Total.		When Partial.			
No. of Vessels.	Amount.	No. of Vessels.	Amount.		
	\$ cts.		\$ cts.		
				63	
				41	
11	150,700	44	70,433	55	{ On 28th Sept. steamer "Rapid" capsized near Pt. Pelée, Lake Erie; 7 lives lost; loss on vessel, \$8,000.
8	108,000	12	23,450	18	{ On 24th Nov. propeller "Mary Ward" foundered off Nottawasaga Lighthouse, Lake Huron; 8 lives lost; \$43,000.
6	109,300	21	52,175	27	{ On 5th Nov. steamer "Bavarian" was burnt off Whitby Lighthouse, Lake Ontario; 20 lives lost; \$50,000.
10	96,000	11	27,550	21	
4	40,000	5	11,000	9	{ On 17th May schooner "T. C. Street" capsized on Lake Erie; 6 lives lost; \$4,000.
5	92,000	13	12,400	22	{ On 26th Oct. schooner "Maggie Hunter" on Lake Ontario; 7 lives lost; \$10,000.
13	97,600	13	25,425	26	{ On 8th Oct. barge "American" drifted ashore at Point Pelée, Lake Erie; 6 lives lost; \$7,000.
5	20,900	18	27,445	23	{ On 16th June schooner "James Scott" capsized above Port Burwell Lighthouse, Lake Erie; 5 lives lost; \$10,000.
18	133,600	37	29,500	55	{ On 16th April schooner "Northman" foundered off Port Credit, Lake Ontario; 8 lives lost; \$18,000.
11	110,800	21	38,775	32	{ On 7th Nov. steamer "Zealand" foundered near Long Point, Lake Ontario; 17 lives lost; \$27,000.
22	226,450	13	32,963	35	{ On 24th Nov. steamer "Simcoe" foundered off Manitoulin Islands, Lake Huron; 12 lives lost; \$24,000.
17	219,200	27	105,389	44	{ On 24th May steamer "Victoria" upset on Thames River, 1½ miles from London; 182 lives lost.
6	63,972	9	28,125	15	{ On 19th July steamer "City of Winnipeg" burnt at Duluth; 4 lives lost; \$60,000.
					{ On 14th Nov. schooner "E. P. Dorr" foundered off Long Point; 7 lives lost; \$9,000.
138	1,468,522	244	484,635	486	

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APPENDIX No. 22.

REPORT

ON

GOVERNMENT TELEGRAPH LINES,

FOR THE FISCAL YEAR ENDED 30TH JUNE, 1885.

BY

F. N. GISBORNE, Superintendent.

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APPENDIX No. 22.

REPORT ON GOVERNMENT TELEGRAPH LINES.

Ref. No. 61,880.

OTTAWA, 1st September, 1884.

SIR,—I have the honour to submit the following report upon the telegraph service for the twelve months ended 30th June, 1885, with the accompanying tabular statements, showing the length of lines, number of offices, staff, salaries, &c., in the several localities where the Government telegraph service is in operation.

NEWFOUNDLAND.

The maintenance and operation of the line between Port aux Basque and Cape Ray has been satisfactorily continued, under the immediate supervision of the Anglo-American Cable Co.

ATLANTIC COAST.

A land line 43 miles in length was put in operation between Chatham and Point Escuminac lighthouse, New Brunswick, during the autumn of 1884.

The line was constructed by Mr. W. Wyse, of Chatham, N.B., who began work on the 4th August, and completed it on the 15th November. An agreement for the supervision of the operation of this line has been entered into with the Great North-Western Telegraph Company. The revenue since the establishment of the line has been \$69.12 and the expenditure for maintenance about \$150.00

The maintenance of the other lines upon the Atlantic coast has been continued under the immediate supervision of the Western Union Telegraph Company, as heretofore.

The figures for the lines from which the Government derives revenue are as follows:—

Barrington to Cape Sable, revenue \$71.57, expenditure, \$293.75.

1883-84 1884-85.

Meat Cove to North Sydney:—

Revenue.....	\$ 724 00	786 30
Expenditure.....	1,537 26	2,464 70

GULF OF ST. LAWRENCE.

The temporary repairs which were made to the land lines upon the Magdalen Islands in the summer of 1884 served to maintain the system in running order during the ensuing autumn and winter, and the substitution of cables for the comparatively long stretches of aerial wire crossing the gullies, in the sand bars extending between the Islands, was postponed until the present season.

Arrangements have been made for a thorough overhauling of the lines, including the placing of two knots of cable for the purpose stated, and these lines will be restored to first-class condition before the close of navigation. The cable connections with Bird Rock and Meat Cove have remained sound during the year.

The lines upon the Island of Anticosti have been kept in working order, and the cable connection with Gaspé remained uninterrupted.

The revenue and local expenditure figures for 1884-85, compared with 1883-84, are as follows:—

	1883-84	1884-85
Anticosti Island:—		
Revenue	\$ 813 42	300 59
Expenditure	1,548 27	1,696 30
Madgalen Islands (including Meat Cove Line):—		
Revenue	1,272 33	1,363 30
Expenditure	3,325 84	4,368 69

BAY OF FUNDY.

The land lines and cables comprising the connection between Eastport, Me., and the Islands of Campo Bello and Grand Manan, continued in good working order during the year.

	1883-84	1884-85
Revenue	\$ 804 86	804 90
Expenditure	1,194 65	1,068 45

NORTH SHORE ST. LAWRENCE.

During the great gales which prevailed in the early part of November, 1884, a section (14 miles in length) of the land line on the peninsula of Manicouagan, west of Point Paradis, was entirely swept away, and as the season was then too far advanced to renew the telegraph connection a temporary office was opened at Point aux Outardes, and a courier service was established between that office and Point Paradis, by which means business was transacted over the lines during the winter months. Arrangements are now being made for the re-building of the line, and through connection will be established in a few weeks.

The line which had been constructed as far as Penticost on the 31st December 1883, was further extended in the summer of 1884, under contract, by Messrs. A Gagnon & Bro., Quebec, who resumed operations in the month of August and continued the line 125 miles eastward from Penticost to a point beyond Moisie River where, on the 16th November, the work was again discontinued. Offices were opened for business at Seven Islands on 24th December, 1884, and at Moisie River on 4th February, 1885.

On the 31st March, 1885, the agreement under which the lines from Chicoutim to Murray Bay and Bay St. Paul to Bersimis had been operated by the Great North-Western Telegraph Company was cancelled, and on the 1st April these lines were taken over, and have since that date been operated directly by the Department.

The revenue of the lines west of Bersimis, for the three months ended 30th June was \$391.53, and the expenditure for staff and line repairs, \$570.48

The revenue of the line east of Bersimis for the year 1884-85 was \$204.00 and the expenditure, for staff and repairs, about \$2,000.00

GROSSE ISLE QUARANTINE LINE.

In August, 1884, the establishment of telegraphic communication between Quebec and Grosse Isle Quarantine Station was undertaken. A wire was strung upon the poles of the Great North-Western Telegraph Company from Quebec to L'Ange Gardien, 13 miles, and cables were laid from L'Ange Gardien to St. Pierre, Orleans Island, $\frac{3}{4}$ of a mile, and from St. François, Orleans Island, to Grosse Isle, $5\frac{1}{4}$ miles. A contract for the construction of the land line sections (in all $32\frac{1}{2}$ miles) upon Orleans Island and Grosse Isle, was awarded to Mr. P. Langlois, of St. John's, Quebec, who began work on the 8th September. The Orleans Island section, 28 miles, was

completed on the 18th November, but the shorter line on Grosse Isle was only partially done when winter set in, and completion was deferred until after the reopening of navigation.

During the winter the cable which had been laid between St. François and Grosse Isle was badly broken by the ice, and a portion of it, $1\frac{1}{2}$ miles, was carried down the river. In consequence of this the electrical connection with the Quarantine Station was considerably delayed, and it was not until the 8th July, 1885, that a new section of cable, which had been procured, was placed in position, and communication with the Quarantine Station was established.

The revenue of the line on Orleans Island, where five offices have been opened, was, from December to June, inclusive, \$58 96 and the expenditure about \$100.00.

NORTH-WEST PROVINCES.

The great value of telegraphic communication in the North-West Provinces was made manifest during the late rebellion, but the constant interruption in the lines from wilful damage, decayed poplar poles and defective wire and other material used in constructing the original pioneer line on the abandoned route for the Canadian Pacific Railway, added largely to the cost of maintenance, the net result being an expenditure of \$22,045.57 and a revenue of \$7,500.00 for the lines extending from Qu'Appelle to Edmonton.

During the months of May and June, 1885, two first-class telegraph lines were constructed, under my personal supervision, for military purposes, from the Canadian Pacific Railway station at Dunmore to Fort Macleod, *via* the Lethbridge coal mines, a distance of 136 miles, at an average rate of 7 miles per day; and from the Canadian Pacific Railway Station at Moose Jaw to Wood Mountain post, a distance of 90 $\frac{1}{2}$ miles. These lines were constructed at a total cost averaging nearly \$200 per mile. The wire used was No. 6 gauge, having an electrical resistance of less than 8 ohms per mile, with a breaking resistance of 1850—1,900 lbs. The insulators are of porcelain, and the effectiveness of the lines when completed was such that only one quarter of the usual battery power was found requisite for working purposes. In lieu of poplar poles being used, as heretofore, bankshire pines from the Rocky Mountains were obtained for the Macleod line, and cedar from Keewatin, Manitoba, was utilized for the Wood Mountain line. Such woods, with a prospective life of 8 or 10 years for pine and 20 to 25 years for cedar, are not, however, obtainable at or near the Saskatchewan River, between Battleford and Edmonton, and as poplar poles, the only kind to be had thereabout, rot in 2 years, or at the farthest 3 years, a light galvanized iron pole of my own design will probably be substituted therefor. One thousand of these iron poles are now *en route* from England to Battleford for trial upon the new line which is to be constructed to Fort Pitt during the present fiscal year. It is supposed that such poles will remain good for 30 or 40 years, but even if as durable as cedar, the economy of land transport will, owing to their weight and compactness, commend them for prairie use, as they will be entirely free from the dangers of fire, lightning, and wilful pilfering, to which latter the wooden poles are specially subject where fuel is scarce.

A line 9 miles in length has been erected between Edmonton and St. Albert, the Government having furnished all the material, excepting the poles, which were provided by the inhabitants of St. Albert, at a total cost of \$675.00.

A line 14 miles in length is now in course of erection between Clarke's Crossing and Saskatoon, the Government having furnished the necessary wire, insulators, brackets, battery and instruments, to the value of \$750.00, per special appropriation for such purpose; and the inhabitants of Saskatoon having furnished the poles and agreed to erect the line by local subscription.

Both of the above short lines are to be operated with telephones, thus avoiding the annual cost of salaried operators. The St. Albert line has already been satisfactorily operated in this way for some weeks.

BRITISH COLUMBIA.

During October, 1884, a deep-sea cable was successfully submerged, under my personal supervision, between Clover Bay, Vancouver Island, and Dungeness, Washington Territory, and there connected with the Puget Sound Telegraph Company's wire to Seattle, and with the United States Government line to Cape Flattery. At the same time heavy shore ends for such cable were ordered from England, but prior to their arrival, during a heavy gale on the 11th December, the cable parted near the beach at Dungeness. From various causes, the shore ends referred to did not arrive in British Columbia until after the close of the fiscal year 1884-85.

In consequence of a chance purchase of the cable in England, at an exceptionally low price, the cost of the connection above referred to was several thousand dollars less than the original estimate and amount appropriated for the purpose; and when the repairs for which the shore ends are required shall have been made, the change of route for messages between Victoria, Portland and San Francisco will conduce much towards the reliability of connection with these important centres of business.

The land line between New Westminster and Granville has been entirely reconstructed along the new waggon road—the old trail having been abandoned—and other portions of the main line efficiently repaired, pending the transfer of the sections between New Westminster and Ashcroft, and between Cache Creek and Kamloops, to the Canadian Pacific Railway Company.

During the fiscal year 1884-85 there were 76,797 paid messages transmitted over the Government lines, and yielded a revenue of \$35,655.05, while the expenditure during the same period amounted to but \$34,356.12, thus literally verifying my original anticipation, as reported in 1879-80, when the Government acquired the line by purchase from the Western Union Telegraph Company. The gradual reduction in the deficiency of the revenue, compared with the expenditure for ordinary maintenance, during the seven years, is shown by the following figures:—

1878-79—Excess of expenditure over revenue.....	\$34,680
1879-80 do do do	27,500
1880-81 do do do	17,813
1881-82 do do do	7,792
1882-83 do do do	3,912
1883-84 do do do	*5,407
1884-85—Excess of revenue over expenditure.....	1,299

* The increased expenditure in 1883-84 was due, for most part, to destruction of lines by forest fires.—*Vide* report for that year.

RECAPITULATION.

(Exclusive of Lines in the North-West Territory.)

	Expenditure.		Revenue.	Deficit.	
	\$	cts.	\$	cts.	\$ cts.
Gulf of St. Lawrence and Maritime Provinces :—					
Anticosti Island.....	1,696	30	300	59	1,395 71
Magdalen Islands (including Meat Cove lines).....	4,368	69	1,363	30	3,005 39
Cape Sable, Barrington.....	293	75	71	57	222 18
Chatham, Escuminac.....	150	00	89	12	89 88
Grosse Ile Quarantine.....	100	00	58	96	41 04
Bay of Fundy.....	1,068	45	804	90	263 55
North Shore, St. Lawrence.....	2,570	48	595	53	1,974 95
Subsidies, stationery, line and office material and contingencies chargeable to the Special Appropriation for the Gulf lines.....	4,328	87			4,328 87
					11,312 57
British Columbia system.....	34,356	12	35,655	05	Sur. 1,298 93
Total.....	48,932	66	38,919	02	10,013 64
The figures for 1883-84 were.....	49,435	72	30,428	61	19,007 10

I have the honor to be, Sir,

Your obedient servant,

F. N. GISBORNE,

Superintendent Government Telegraph Service.

A. GOBEL, Esq., Secretary,

Department of Public Works.

GOVERNMENT TELEGRAPH SERVICE.

NEWFOUNDLAND TELEGRAPH SYSTEM.

No.	STATIONS.	Intermediate Distances.	Operators.	Salaries per Annum.	Date of Appointment.	MEMO.
1	Port au Basque.....	Miles. 0	.....	\$ cts. 50 00 or com'n.....	.....	N.B.—The commission is 25 per cent. upon all business to and from the office; said commission guaranteed not to be less than at the rate of \$50 per annum.
2	Cape Ray Lighthou e.....	14	.....	50 00 do ..	.....
	Totals.....	14		100 00		

Cost of land line, \$1,763.36; interest thereon at 5 per cent, say \$ 90 00

Estimated annual maintenance and repairs..... 160 00

Total..... \$ 250 00 Required in Estimates, 1885-86.

N.B.—The above short line is constructed in connection with the Signal Service, and connects at Port au Basque with the land line system of the Anglo-American Telegraph Company.

ANTICOSTI TELEGRAPH SYSTEM.
ANTICOSTI ISLAND SERVICE.

No.	STATIONS.	Inter- mediate Distances.	Operators.	Salaries per Annum.	Date of Appointment	Memo.
		Miles.		\$ cts.		
1	Fox Bay.....	0	Miss E. Nickerson	50 00 or com'n....	Aug. 11, 1881	N.B.—The commission is 25 per cent. upon all business to and from the office; and commission guaranteed not to be less than at the rate of \$50 per annum.
2	Heath Point Lighthouse.....	23	T. Gagné	do	July 20, 1881	
3	South Point Lighthouse.....	32½	W. Carter.....	50 00 do	do 27, 1881	
4	Shallow Creek.....	17½	B. Bradley.....	50 00 do	do 7, 1881	
5	Salt Lake	52½	F. Denault	360 00	Oct. 19, 1881	General Repairer. Plus \$1 per day when absent on duty.
			Miss G. Denault	50 00 do	Sept. 1, 1882	
6	South-West P'nt Lighthouse.	15	Miss G. Pope	200 00	Oct. 18, 1880	Chief Operator since 1st August, 1882. Previously received \$50 per annum.
			E. Pope	100 00	Aug. 1, 1882	District Superintendent. Plus \$1 per day when absent on duty.
7	Jupiter River.....	7	.....	50 00 do	.....
8	Otter River.....	17½	.....	50 00 do	.....
9	Beesie River.....	22	Miss A. Ascab.....	50 00 do	Oct. 8, 1881	Plus \$1 per day for her father when he is absent on repairing duties.
10	Cape Eagle (Ellis Bay)	10	.....	50 00 do	.....
11	West Point Lighthouse	14	A. Malouin.....	50 00 do	Aug. 1, 1881	
12	English Bay	3	F. Cabot	50 00 do	July 1, 1882	N.B.—Mr. J. A. Lebourdais was District Superintendent from 17th August, 1880, to 31st July, 1882, at \$450 per annum.
	Totals	214		1210 00		

Cost of land lines complete at (say) \$165 per mile..... \$ 35,300 00

CABLE.

S. W. Point Lighthouse to L'Ange à Fougère, Gaspé, 44½ nautical miles at \$1,100 laid down..... 48,700 00

Total..... \$ 84,000 00

GOVERNMENT TELEGRAPH SERVICE—Continued.

ANTICOSTI TELEGRAPH SYSTEM.

GASPÉ.

No.	STATIONS.	Inter- mediate Distances.	Operators.	Salary per Annum	Date of Appointment.	Memo.
1	L' Anse à Fougère.....	Miles. .....	.....	\$ cts. 50 00 or com'n... ..	.....	N.B.—The commission is 25 per cent. on all business to and from the office; said commission guaranteed not to be less than at the rate of \$50 per annum.
2	Gaspé Basin.....	28 — 28	J. J. Annett.....	150 00 — 200 00	Oct. 16, 1881... ..	Plus his salary as operator for the G.N.W. Telegraph Company.

Cost of land line..... \$1,925 00

TOTAL COST OF ANTICOSTI TELEGRAPH SYSTEM.

Land lines, 242 miles..... \$37,225 00
 Cable, 44¹/₂ nautical miles..... 48,700 00
 Total..... \$85,925 00

ESTIMATED COST OF ANNUAL MAINTENANCE AND REVENUE.

Land lines—Salaries and repairs..... \$3,500 00
 Cables—Repairs, say..... 500 00
 Total..... \$ 4,000 00
 Less—Revenue, probably..... 500 00
 Balance deficit..... \$3,500 00

N.B.—In connection with the Signal Service a land line 206 miles in length has been erected between Grand Metis and Gaspé Basin for a bonus of \$16,000, and is now maintained and operated by the Great North-Western Telegraph Company without further expense to the Government.

MAGDALEN ISLANDS SECTION.

STATIONS.	Inter- mediate Distances.	Operators.	Salaries per Annum.	Date of Appointment.	MEMO.
	Miles.		\$ cts.		
1 Amherst	0	Miss J. Shea.....	50 00 or com'n.	Oct. 1, 1882	N.B.—The commission is 25 per cent. on all busi- ness to and from the office; said commission guaranteed not to be less than at the rate of \$50 per annum.
2 Amherst Lighthouse	9	Wm. Cormier	50 00 or com'n.	June 11, 1881	Plus \$30 per annum for rent. General line repairer.
3 Etang du Nord Village	15	P. Pelletier.....	400 00	Dec. 1, 1881	Plus 2-wire loop.
4 do Lighthouse	1	Miss O'Brien.....	50 00 or com'n.	do 1, 1881	
5 Cap aux Meules.....	.....	W. Leslie	50 00	Aug. 9, 1883	
6 House Harbour.....	8	P. Jones	50 00	Dec. 1, 1881	1 mile loop. Short cable of 750 feet in length.
7 Wolfe Island	28½	N. Clark	100 00	Sept. 25, 1881	
8 Grosse Isle	11	A. LeBourdais, D. Supt...	500 00	Aug. 17, 1880	Plus \$1 per day when absent on duty.
9 Bird Rock	Cable	T. Turbide	50 00 or com'n.	do 20, 1881	
10 Grand Entry	11	Miss McPhail	50 00	Feb. 18, 1882	MEMO.—House Harbour office was worked by Miss O'Brien from 1st Jan., 1881, to 30th Nov., 1881, and Amherst office by Miss C. Campbell from 1st Dec., 1881, to 30th Sept., 1882.
Totals.....	83½		1,350 00		

Cost of above land lines complete, with instruments, at \$130 per mile \$10,855 00

CABLES.

Distance, Grosse Isle to Bird Rock, 18 ² / ₁₀ nautical miles	} At a general average cost of about \$1,100 per mile laid down, 73 ² / ₁₀ miles....	
do Old Harry to Meat Cove, C.B., 54 ⁹ / ₁₀ do		80,630 00
do Across House Harbour Gut, 7 ¹ / ₁₀ do		
Total.....		\$91,485 00

MAGDALEN ISLANDS TELEGRAPH SYSTEM.
CAPE BRETON SECTION.

No.	STATIONS.	Inter- mediate Distances.	Operators.	Salaries per Annum.	Date of Appointment.	MEMO.
		Miles.		\$ cts.		
1	Meat Cove.....	0	A. B. McDonald	420 00	Nov. 7, 1880	N. B.—The commission is 25 p. c. upon all business to and from the office; said commission guaranteed not to be less than at the rate of \$50 per annum.
2	Aspy Bay.....	10½	R. G. Zwicker	50 00 or com'n.	Aug. 1, 1882	
3	O'Neil's Harbour (away house)	15	.....	50 00 do	.....
4	Ingonish, North Bay.....	9	J. M. Burke	360 00	April 1, 1882	General Repairer, N. B.—Ingonish office was worked by F. Brown from Jan. 1, 1881, to March 31, 1882.
5	Ingonish Harbour.....	10½	.....	50 00 do	.....
6	Indian Brook	23	D. McLennan	50 00 do	April 1, 1883	N. B.—This section is at present operated and maintained by the Dominion Telegraph Company, but at the cost of the Government. The agreement is for ten years (expiring 18th April, 1891) but can be cancelled on one year's notice. N. B.—St. Anne's office opened 1st Jan., 1884, R. S. McDonald, operator, until 1st April.
7	St. Anne's South Bay	19	Miss C. Morrison.....	50 00 do	do 1, 1884	
8	Baddeck (Loop Line).....	13	Miss Dunlop.....	50 00 do	Jan. 1, 1882	
9	Englishtown	6	Miss Bingham.....	50 00 do	July 19, 1882	
10	Kelly's Cove	2	C. L. Campbell.....	50 00 do	April 1, 1885	
11	Big Bras d'Or.....	6	.....	50 00 do	.....
12	North Sydney	12½	
	Totals.....	126½	1,230 00	

Cost of above land lines complete, with instruments, at \$110 per mile..... \$13,915 00

CABLES.

Crossing Big Bras d'Or, ¾ nautical mile 550 00
\$14,465 00

TOTAL COST MAGDALEN ISLAND SYSTEM.

Land lines, 210 miles cost..... \$24,770 00
Cables, 73½ nautical miles cost..... 81,180 00
\$105,950 00

ESTIMATED COST OF ANNUAL MAINTENANCE OF MAGDALEN ISLAND SYSTEM.

Local lines. Salaries and repairs..... \$4,100 00
Cable. Repairs, say 1,000 00
Total \$5,100 00 Required in Estimates,
Less probable revenue..... 1,100 00 1885-86.
Balance deficit \$4,000 00

NOVA SCOTIA TELEGRAPH SYSTEM.
CAPE SABLE SECTION.

No.	STATIONS.	Inter- mediate Distances.	Operators.	Salaries per Annum.	Date of Appointment.	Memo.
		Miles.		\$ cts.		
1	Barrington	0	Miss A. A. Sponagle.	50 00 or com'n.	Dec. 18, 1883	N.B.—The commission is 25 p.c. upon all business to and from the offices; said commission guaranteed to be not less than at the rate of \$50 per annum.
2	Newelltown (including 1½ miles cable)	11	Miss S. J. Newell.	50 00 do ...	do 22, 1883	
3	Cape Sable Island Lighthouse (including ¼ mile cable)....	6¾	I. K. Doane.....	50 00 do ..	do 18, 1883	
	Totals.....	17¾		150 00		

Cost of land line, 16 miles.....	\$2,103 00
Cost of cables, laid, 1¼ miles, about.	1,500 00
	<u>\$3,603 00</u>

Estimated cost of actual maintenance :—

Required in Estimates for 1885-86.....	\$300 00
Estimated revenue do	100 00

GOVERNMENT TELEGRAPH SERVICE—Continued.

LOW POINT, CAPE BRETON SECTION.

No.	STATIONS.	Inter- mediate Distances.	Operators.	Salaries per Annum.	Date of Appointment.	MEMO.
		Miles.		\$ cts.		
1	Lingan.....	0	.....	50 00 or com'n.	.....	N.B.—The commission is 25 p.c. upon all business to and from the office; said commission guaranteed not to be less than at the rate of \$50 per annum.
2	Low Point Lighthouse.....	5	S. Peter's.....	50 00 do	Aug. 1, 1881	
	Totals.	5		100 00		

Cost of land line..... \$635 00

Estimated annual maintenance and repairs:—

Land lines—Salaries and repairs..... \$150 00 Required in Estimates,
1885-86.
Less probable revenue..... 5 00

Balance deficit..... \$145 00

EAST COAST SECTION.

N.B.—In connection with the Signal Service a land line 208 miles in length has been erected between Canso and Halifax for a bonus of \$16,000, and is now maintained and operated by the Western Union Telegraph Company without further cost to the Government.

CHATHAM-ESCUMINAC, N.B., TELEGRAPH SYSTEM.

STATIONS.	Intermediate Distances.	Operators.	Salary per Annum.	Date of Appointment.	Memo.
1 Chatham.....	Miles. 0	Great North-Western Telegraph Co.	\$ cts. 185 00	1885.	This amount is paid for supervision of the line and office accommodation at Chatham.
2 Black Brook.....	5½	J. Sinclair.....	50 00 or com'n..	April 25.....	The commission is 25 per cent. of the Government line tariff receipts, guaranteed to amount to not less than \$50 per annum.
3 Bay du Vin.....	15	Miss M. Williston.....	50 00 do ..	March 1.....	The office at Point Escuminac Lighthouse was opened and operated by the telegraph instructor, C. F. Campbell, from 15th November, 1884, to 1st February, 1885.
4 Escuminac	9½	Mrs. A. Lewis	50 00 do ..	Sept. 1.....	
5 Point Escuminac Lighthouse	12	H. W. Phillips, jun.....	50 00 do ..	Feb. 1.....	
Total.....	42		385 00		

Total cost, all land line, 42 miles equipped (averaging about \$120 per mile)..... \$5,600 00
 Estimated cost of annual maintenance, salaries and repairs..... 800 00
 Required in Estimates, 1885-86.

GOVERNMENT TELEGRAPH SERVICE—Continued.

BAY OF FUNDY, N.B., TELEGRAPH SYSTEM.

GRAND MANAN SECTION.

No.	STATIONS.	Intermediate Distances.	Operators.	Salaries. per Annum.	Date of Appointment.	Memo.
	<i>Long Eddy Cable Hut, to</i>	Miles.		\$ cts.		
1	Flagg's Cove	3	{ H. C. Seely (D. Supt.) ... Miss C. Daggett.....	420 00 50 00	Nov. 18, 1880 } June 1, 1882 }	N.B.—The commission is 25 p. c. upon all business to and from the office; said commission guaranteed not to be less than at the rate of \$50 per annum.
2	Woodward's Cove	6	E. Cameron.....	50 00 or com'n..	April 1, 1885...	N.B.—Woodward's Cove office was operated by W. A. Fraser, from 26th November, 1880, till 31st March, 1885.
3	Grand Harbour	2	.....	50 00 do	.....	N.B.—Grand Harbour office was closed on 1st November, 1884. It had been operated by Miss J. Cronk from 18th January, 1881.
4	Seal Cove	4½	O. McLaughlin.....	50 00 do	Jan. 1, 1883...	Seal Cove office was operated by Miss L. Fry, from 1st November, 1882, till 31st December of same year.
5	Southern Head Lighthouse...	5½	Wood McLaughlin	50 00 do	do 18, 1881...	
			D. McKay, Repairer.	60 00	May 1, 1881...	
	Totals.....	21	.....	730 00		

Cost of land lines \$2,000 00

CABLE.

Length of cable, Long Eddy, Grand Manan, to Liberty Cove, Campo Bello, 7,200 nau. miles. 8,000 00

Total \$10,000 00

CAMPO BELLO SECTION.

STATIONS.	Intermediate Distances.	Operators.	Salaries per Annum.	Date of Appointment.	MEMO.
<i>Liberty Cove Cable Hut, to</i>			\$ cts.		
1 Welchpool.....	7½ Miles.	G. M. Mabee.....	100 00 or com'n..	Dec. 1, 1881....	This office was worked by G. M. Mabee, from 1st February to 30th April, 1881, at \$20 per month, and by G. M. Byron at \$50 per annum, from 1st May to 30th November, 1881. Mr. Mabee was again paid \$20 per month after 1st July, 1883, until September, 1884.
2 Eastport, Maine, U.S.A.	½	J. Cushing	100 00	do 26, 1881....	
Totals.....	8	.....	200 00		

Cost of land lines \$ 825 00

CABLE.

Cable, 1³⁰/₁₀₀ nautical miles, Welchpool (Campo Bello) to Eastport, Maine, U.S.A..... 2,100 00
Total \$2,925 00

TOTAL COST OF GRAND MANAN TELEGRAPH SYSTEM.

Land lines, 29 miles, cost..... \$2,825 00
Cables, 9¹⁰/₁₀₀ nautical miles, cost..... 10,100 00
Total \$12,925 00

ESTIMATED COST OF ANNUAL MAINTENANCE AND REVENUE.

Land lines—Salaries and repairs \$1,600 00
Cable—Repairs, probably 1,000 00
Total..... \$2,600 00
Less probable revenue \$2,600 00 Required in Estimates, 1885-86.
Balance deficit. \$1,600 00

GOVERNMENT TELEGRAPH SERVICE—Continued.
CHICOUTIMI AND NORTH SHORE OF ST. LAWRENCE TELEGRAPH SYSTEM.
CHICOUTIMI SECTION.

No.	STATIONS.	Intermediate Distances.	Operators.	Salaries per annum.	Date of Appointment.	MEMO.
		Miles.				
1	Bay St. Paul.....	0	F. Boivin.....	\$ 50 or comm'n*	Previous to April 1, '85. (See note.)	N.B.—This line was completed to Chicoutimi 1st September, 1881. It was operated and maintained by the Great North-Western Telegraph Company (Montreal Tel. Co.) until 31st March, 1885, when it was taken over by the Department of Public Works. *The commission upon business is 25 per cent. of the tolls for the Government line; the amount guaranteed to be not less than \$50 per annum.
2	St. Urbain.....	9	A. Boivin.....	50 do	do	
3	La Cruche.....	37	A. Tradet.....	50 do	do	
4	St. Alexis.....	31½	G. Lavoie.....	420.....	do	
5	St. Alphonse de Bagotville...	3	A. Simard.....	50 or comm'n*	do	
6	Chicoutimi.....	11½	T. Boily.....	50 do	do	
	Total	92		720		

CONSTRUCTION.
Cost of land line complete, at \$135 per mile..... \$12,420 00

MAINTENANCE.
Included with North Shore Section.

NORTH SHORE SECTION.

No.	STATIONS.	Intermediate Distances.	Operators.	Salaries per annum.	Date of Appointment.	MEMO.
		Miles.				
1	Murray Bay.....	0	Mrs. F. Vincent.....	\$ 50 or comm'n*	Previous to April 1, '85. (See note.)	N.B.—This line was completed to Betsiamits in September, 1882, and was operated and maintained by the Great North-Western Telegraph Company until 31st March, 1885, when it was taken over by the Department of Public Works.
2	St. Fidele.....	10	E. W. Tremblay.....	50 do	do	
3	St. Simeon.....	11	J. Tremblay.....	50 do	do	
4	Padouac (1 mile cable).....	25	D. Lapointe.....	50 do	do	
5	Bergeronnes.....	15	M. Savard.....	50 do	do	
6	Escumains.....	12	J. H. Topping.....	50 do	do	
7	Mille Vaches.....	16	J. A. Puize.....	50 do	do	
8	Portneuf Mills.....	11½	W. D. Lawson.....	50 do	do	
9	Portneuf Light (Loop 3 miles)	9	D. Tremblay.....	50 do	do	
			M. McLaren (Repairer)...	420.....	do	

12	Pointe aux Outardes.....	12	W. Pelletier.....	420	Aug. 1, 1883		
13	Pointe Paradis, Manitouagan.....	18		50 or comm'n*	Oct. 15, 1883		
14	River Godbout.....	26	N. F. Comeau.....	50	Dec. 28, 1883		
15	Pointe des Monts.....	18½	J. Fafford.....	50	May 16, 1884		
16	Trinity Bay.....	7½	Mrs. Poulin.....	50	Feb. 16, 1884		
			Jos. Gagnon.....	50			
17	Pentecost River.....	31	P. O. Bonenfant (Supt.'s Agent).....	200	April 1, 1885		
18	Sept Isles.....	29½	P. E. Vignault.....	180	Jan. 2, 1884		
19	River Moisy.....	19					
20	Poste de Mingan.....	95					
21	Pointe aux Esquimaux.....	18					
22	Natashquan.....	64					
23	Wapitagan.....	60					
24	Shecatia.....	83					
25	Bonne Espérance.....	49					
26	Blanc Sablon.....	24					
		702		1,970			

The office at Moisy River has been operated by the Telegraph Instructor, P. S. Bodman, since it was opened on 4th February, 1885.

The office at Moisy River has been operated by the Telegraph Instructor, P. S. Bodman, since it was opened on 4th February, 1885.

Cost of land line complete to Mille Vaches, at \$135 per mile.....	\$11,610 00
do Mille Vaches to Betsiamits, at \$250 per mile.....	14,625 00
do sections between Betsiamits and Pentecost, \$176.50 per mile.....	13,239 00
Cost of cable sections, 1 knot across Saguenay, near Tadousac.....	1,100 00
do 12 knots, Bersimis to Point aux Outardes, and 26 knots, Pointe Paradis to Godbout River..	16,700 00
	<u>\$57,274 00</u>

ESTIMATED COST OF ANNUAL MAINTENANCE.

Chicoutimi and North Shore to Betsiamits (in addition to revenue which has hitherto been retained by the G.N.W. Telegraph Company).....	\$1,000 00
Betsiamits to River Moisy.....	2,400 00
Cable repairs.....	500 00
	<u>\$3,900 00</u>

Required in Estimates for 1885-86.....

GOVERNMENT TELEGRAPH SERVICE — Continued.
GROSSE ISLE QUARANTINE TELEGRAPH SYSTEM.

No.	STATIONS.	Intermediate Distances.	Operators.	Salaries per annum.	When Appointed.	MEMOS.
1	Quebec.....	Miles. 0	Great North-Western Telegraph Co.	185 00	.....	This amount is paid for supervision of the line, and covers rent of the pole line Quebec to L'Ange Gardien, for which \$35 per annum is charged.
2	L'Ange Gardien St. Pierre (¾ mile cable).....	13 4	C. Turcott.....	50 00 or com'n....	Mar. 1, 1885	The commission is 25 per cent. of the Government line tariff, guaranteed to amount to not less than \$50 per annum.
3	St. Petronille.....	4½	M. Ferland.....	50 00 do	Dec. 1, 1884	
4	St. Laurent.....	6½	Mile. L. Chabot.....	50 00 do	do 20, 1884	
5	St. Jean.....	7	H. Bernard.....	50 00 do	Jan. 1, 1885	
6	St. Francois (including 5¼ miles cable).....	6¾	M. Emond.....	50 00 do	Mar. 1, 1885	
7	Grosse Isle quarantine account do hospital.....	9 1½	.....	.....	.....
8	Total	52	.....	435 00	.....

Cost of land lines, 13 miles on Company's poles.....	\$ 216 07
32½ miles upon Orleans and Grosse Isle equipped complete (average about \$190.50 per mile)	6,191 83
Total cost of land line.....	\$6,407 90
Cost of cable (¾-mile spare) 6½ knots, submerged.....	4,092 10
Total first cost of entire line.....	\$10,500 00
ESTIMATED COST OF ANNUAL MAINTENANCE.	
Land line salaries and repairs.....	\$ 850 00
Cable repairs.....	300 00
Required in Estimates, 1885-86.....	\$1,150 00

GOVERNMENT TELEGRAPH SERVICE—Continued.
NORTH-WEST TELEGRAPH LINES.—WOOD MOUNTAIN AND FORT MACLEOD SECTIONS.

No.	STATIONS.	Intermediate Distances.	Operators.	Salaries per Annum.	Date of Appointment.	MEMO.
		Miles.		\$ cts.		
1	<i>Fort Macleod Line—</i>					
2	Galt Junction	0	P. E. Carman.....	240 00	May, 1885.....	
3	Lethbridge	107	.....	.....	.....
4	McLeod	28½	A. Cochrane.....	360 00	May, 1885.....	
	Fort Macleod.....	1	Corporal White.....	200 00	do	
5	<i>Wood Mountain Line—</i>					
6	Moose Jaw	0	H. Rutherford.....	240 00	.....
	Wood Mountain.....	90½	J. S. Macdonald.....	720 00	.....
	Total	226½		1,760 00		

Estimated cost of annual maintenance—salaries, supplies and repairs—required in Estimates, 1885-86, \$3,000.

Office.	Intermediate Distances.	Names.	Positions.	Salaries per month.	Date of Appointment.	Memo.
Victoria.....	Miles.	W. F. Archibald.....	Manager and operator...	\$ 100 00	Nov. 1, 1884	Raparing allowance, \$3 per day.
do .....	.....	J. A. Carmichael	Assistant and clerk.....	65 00	Jan. 1, 1881	
do .....	.....	Wm. Christie.....	Night operator	75 00	do 10, 1885	
do .....	.....	G. Sinclair.....	Operator	60 00	Nov. 22, 1884	
do .....	.....	Max Leclair	Messenger	20 00	Jan. 1, 1882	
Cowican	31	C. H. Sherwood	Operator and repairer...	50 00	do 11, 1884	do \$2 do
Somenos	8	Mrs. Skinner.....	Operator	60 00	May 1, 1881	Testing station; no salary attached.
Cheminus	9	T. D. Conway.....	Operator and repairer...	60 00	Aug. 1, 1883	Repairing allowance, \$2 per day.
Nanaimo	25	J. A. Callaghan	do	60 00	.....	Telephone station at Colliery wharves.
Departure Bay	34	B. H. Wake.....	Operator and repairer...	20 00	Aug. 15, 1881	Repairing allowance, \$2 per day.
Valdes	16	H. J. Edwards	do	50 00	Nov. 22, 1884	
Granville	25	James Wilson	District superintendent..	125 00	May 22, 1880	
New Westminster....	11½	S. T. Mackintosh.....	Manager and operator...	90 00	Nov. 1, 1884	do \$5 do
do .....	.....	Miss S. E. MacLure	Arsistant operator	75 00	May 1, 1881	
do .....	.....	J. Ross	Night operator	75 00	Nov. 1, 1884	
do .....	.....	G. W. McMurphy.....	Messenger	20 00	Dec. 1, 1884	
do .....	.....	.....	.....	.....	.....	Private line; operated by Moodyville Saw Mill Co.
Moodyville	36	John MacLure.....	Operator and repairer...	60 00	Mar. 1, 1885	Plus 36 miles, 2d land wire; repairing allowance, \$1 per day.
Matsqui .....	.....	.....	do	50 00	June 15, 1885	Repairing allowance, \$1 per day.
Chilwack	22	John McCutcheon	Operator	50 00	Nov. 1, 1879	do \$1 do
Hope	36	Mrs. E. Daly	Operator and repairer...	50 00	Jan. 16, 1885	do \$3 do
Yale	13	F. S. Brown	Messenger and assistant..	30 00	July 17, 1882	
do .....	.....	James Fraser	Operator and repairer...	60 00	Nov. 30, 1884	\$15 per month, horse feed.
Boston Bar	25	H. T. MacAuley .....	.....	.....	.....	C. P. R. Divisional Engineer's headquarters.
Keefe's	16	.....	Operator and repairer...	50 00	June 1, 1885	\$20 per month, horse feed.
Lytton	16	W. K. Reynolds	Operator	60 00	May 27, 1880	C. P. R. Divisional Engineer's headquarters.
Drynock	17	H. A. F. MacLeod	Operator and repairer...	60 00	Feb. 16, 1885	Repairing allowance, \$3 per day.
Spence Bridge	6	Daniel O'Hara	do	60 00	May 1, 1885	do \$3 do
Cache Creek	30	H. L. Good	Operator	60 00	May 1, 1885	do \$2 do
Savona's Ferry	22	O. B. Chapman.....	Operator and repairer...	50 00	Oct 28, 1881	do \$2 do
Kamloops	26	A. J. Venn	do	50 00	do 1, 1883	do \$250 do
Clinton	53	J. A. LeBourdais	do	50 00	May 1, 1880	\$10 per month, horse feed.
Bridge Creek	26	Wm. Walker	do	50 00	June 1, 1886	\$15 do do
Soda Creek	78	Henry Yeates.....	Operator	60 00	April 28, 1882	\$15 do do
Queenselle	54½	Miss I. Barlow.....	do	47 00	.....	Accommodation office; no salary attached.
Stanley	48	W. H. Dodd.....	Operator and repairer...	83 33	Feb. 17, 1873	Repairing allowance, \$3 per day.
Bakerville	13	James Stone.....	.....	.....	.....

GOVERNMENT TELEGRAPH SERVICE IN BRITISH COLUMBIA—Continued.

Office.	Intermediate Distances.	Names.	Positions.	Salaries per month.	Date of Appointment.	MEMO.
	Miles.			\$ cts.		
<i>Branches.</i>						
New Westminster to Ladner's Landing, (½ mile cable).....	18	J. H. Good.....	Operator	40 00	Nov. 22, 1884	
New Westminster to Port Moody.....	7½	Earle Atkins	do .....	.....	Jan. 14, 1884	
<i>Extension of Main Line.</i>						
Victoria.....	19½					
Dungeness, W.T., (including 17 miles cable).....						
Total	721½			1,845 33		

Total salaries, \$1,845.33 per month; \$22,144 per annum.

ESTIMATED ANNUAL COST OF MAINTENANCE.

Salaries, supplies and repairs, required in Estimates, 1885-86	\$34,500 00
Probable revenue	32,500 00
Balance deficit	\$2,000 00

APPENDIX No. 23.

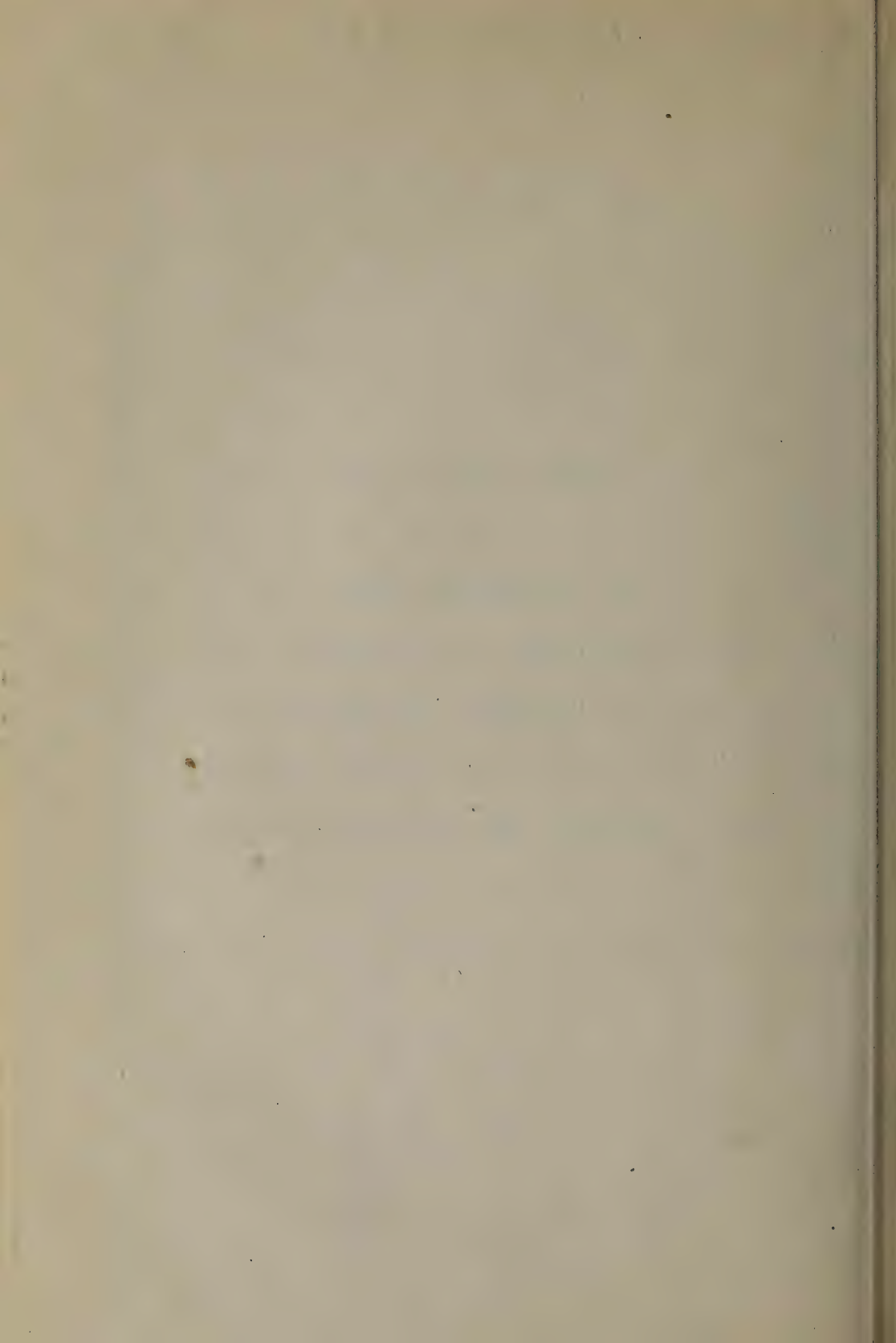
STATEMENTS

1ST.—CONTRACTS LET BY THE DEPARTMENT.

2ND.—PROPERTY PURCHASED BY THE DEPARTMENT.

3RD.—PROPERTY LEASED BY OR TO THE DEPARTMENT,

DURING THE FISCAL YEAR ENDED 30TH JUNE, 1885.



No. 1—CONTRACTS let by the Department of Public Works of Canada, from the 30th June, 1884, to 1st July, 1885.

Works.	Names of Contractors.	Date of Contract.	Amounts.
			\$ cts.
PUBLIC BUILDINGS.			
<i>Ontario.</i>			
Cobourg Post Office—Fittings	W. Battell.....	July 11, 1884	1,735 00
Kingston do do	S. Jenkins.....	Aug. 9, 1884	595 00
Gananoque—Heating apparatus in Custom House....	Chas. Garth & Co.....	do 9, 1884	992 50
Stratford Post Office—Tower clock.....	Woods & Ellis.....	do 8, 1884	1,556 00
Cornwall—Heating apparatus in Post Office, &c.....	Chas. Garth & Co.....	Nov. 13, 1884	1,575 00
Galt—Construction of Post Office, &c.....	M. A. Piggott.....	do 15, 1884	21,000 00
Orangeville do do	do	do 15, 1884	11,150 00
Hamilton—Heating apparatus in Custom House.....	J. J. Blackmore & Co....	Jan. 10, 1885	5,800 00
Clifton do Post Office, &c.....	Chas. Garth & Co.....	do 21, 1885	1,760 00
Port Hope do do	E. Chanteloup.....	do 23, 1885	1,485 00
Generally—Letter box fronts.....	do	do 30, 1885	20,000 00
Clifton Post Office—Fittings	J. E. Askwith	Mar. 3, 1885	500 00
Kingston—Heating apparatus in Post Office.....	J. J. Blackmore & Co....	do 16, 1885	1,600 00
Brockville do do	do	do 16, 1885	1,850 00
London—Addition to Custom House.....	P. Navin	do 20, 1885	4,000 00
Brockville Post Office—Fittings.....	John S. Mix	Apr. 4, 1885	1,938 00
St. Thomas—Heating apparatus in Post Office, &c....	J. J. Blackmore & Co....	do 20, 1885	1,899 00
Berlin do do	Adam Clark	do 20, 1885	1,482 96
Port Hope Post Office—Fittings.....	Thos. Newson	Mar. 20, 1885	2,400 00
Cornwall do do	Lewis A. Ross.....	Apr. 22, 1885	1,300 00
Amherstburg do do	P. Navin	June 8, 1885	1,800 00
<i>Quebec.</i>			
Quebec—Repairing masons' work at the Esplanade.	Geo. Beaucage.....		213 00
Sorel—Construction of a Post Office, &c	do	July 24, 1884	24,750 00
St. Vincent de Paul—Supply of firewood.....	L. Villeneuve & Co.....	do 25, 1884	2,812 50
Montreal—Examining Warehouse—Changing position of hoist.....	Geo. Brush.....	Aug. 4, 1884	330 00
Montreal—Drill Shed—Foundation of Armories.....	St. Louis & Bro	do 25, 1884	12,702 00
Chicoutimi—Marine Hospital—Additions.....	W. Warren		4,034 50
Sherbrooke—Heating apparatus in Post Office, &c ...	Chas. Garth & Co	Dec. 2, 1884	1,632 00
Three Rivers do do	Hydro. Caloric Association, Montreal....	do 8, 1884	832 00
Montreal—New boiler in Custom House	Geo. Brush.....	Oct. 3, 1884	1,545 00
St. Vincent de Paul—Organ for chapel	A. Desrosier.....	Apr. 20, 1885	2,200 00
Sherbrooke Post Office—Fittings	G. G. Bryant.....	Dec. 19, 1884	1,297 00
do Furniture—Inland Revenue and Customs	S. Twose.....	Apr. 15, 1885	1,039 60
Sorel—Post Office, &c.—Alteration of vault.....	J. B. Gauthier... ..	Apr. 30, 1885	550 00
Quebec—Examining Warehouse—Construction of engine, hoist, &c.....	Carrière, Laine & Co...	May 12, 1885	2,580 00
<i>New Brunswick.</i>			
Newcastle—Construction of Post Office, &c.....	McDonald & Treen.....	Aug. 6, 1884	31,250 00
Carleton—Post Office, &c.—Fittings	Causey, Bond & Milden	July 7, 1884	642 70
Bathurst—Construction of Post Office, &c.....	John Black	Nov. 26, 1884	18,325 00
Woodstock—Heating apparatus in Post Office, &c.....	Wisdom & Fish.....	Jan. 30, 1885	1,750 00
Moncton do do	do	Apr. 11, 1885	1,482 96
St. Stephen—Construction of Post Office, &c.....	John MacPherson.....	June 1, 1885	14,700 00
Woodstock—Post Office, &c.—Fittings.....	J. Limerick.....	May 11, 1885	1,000 00
<i>Nova Scotia.</i>			
Amherst—Construction of Post Office, &c.....	Rhodes, Curry & Co...	Sept. 17, 1884	27,374 00
Windsor—Heating apparatus in Post Office, &c.....	E. Chanteloup.....	Jan. 30, 1885	1,280 00

No. 1.—CONTRACTS let by the Department of Public Works, &c.—*Continued.*

Works.	Names of Contractors.	Date of Contrac	Amounts.
<hr/>			
PUBLIC BUILDINGS—Continued.			
Nova Scotia—Continued.			\$ cts.
Digby—Construction of (2) Warehouses on Pier	D. C. & D. W. Clark...	Nov. 28, 1884	1,545 00
Truro—Heating apparatus in Post Office, &c.....	E. Chanteloup.....	Jan. 30, 1885	1,160 00
Yarmouth—Construction of do	Milliken, Gray & Wheaton.....	May 21, 1885	23,248 00
Baddeck do do	R. H. Hill	June 20, 1885	7,500 00
<hr/>			
Prince Edward Island.			
Summerside—Heating apparatus in Post Office, &c....	McKinnon & McLean...	Mar. 26, 1885	1,187 00
Charlottetown—Construction of do	T. C. Connor.....	Apr. 13, 1885	57,397 00
<hr/>			
Manitoba.			
Winnipeg—Parliament Buildings—Grading, fencing, &c.....	Rourke & Cass.	Aug. 7, 1884	7,750 00
do Lieut.-Governor's Residence—Construction of ice House, &c.....	J. E. Gelley & Co.....	do 25, 1884	2,885 00
do Completion of Post Office, &c.....	do	Oct. 10, 1884	135,130 00
do Construction of Drill Shed.....	Murray & McDiarmid..	do 28, 1884	15,940 00
<hr/>			
North-West Territories.			
Medicine Hat and Calgary—Construction Immigrant Sheds	M. P. Zindord.....	Nov. 28, 1884	11,375 00
Regina—Supplying stone for Dominion Building.....	F. J. Bowles.....	Mar. 23, 1885	8,526 38
do do 750,000 bricks do	Martin & Betteridge...	Apr. 7, 1885	12,750 00
do Construction of Gaol and Asylum.....	J. E. Gelley & Co.....	June 2, 1885	15,877 00
do do Post Office.....	do	do	4,121 00
Qu'Appelle—Industrial School—Fencing, picket fence do do do laths do	} M. P. Zindord.	Nov. 3, 1884	0 30 per foot
			0 90 do
<hr/>			
Ottawa.			
Public Buildings—Coal supply, 1884-85.....	G. W. McCullough.....	Aug. 22, 1884	8,893 35
do Painting iron work of fence.....	Thos. Keough.....	July 5, 1884	192 00
do Removal of snow.....	John Bruce.....	Dec. 6, 1884	700 00
Rideau Hall do	Alex. Devlin.....	do 9, 1884	495 00
Public Buildings—Letter box fronts for House of Commons.....	E. Chanteloup.....	do 2, 1884	195 00
do Supply of ice.....	John Moore.....	Feb. 23, 1885	46 00
do do firewood, maple.....	} John Heney.....	May 19, 1885	4 95 per cord
do do do mixed.....			4 75 do
do do do pine kindling..			2 75 do
<hr/>			
HARBOURS AND RIVERS.			
Ontario.			
Wilson's Rock—Construction of a Block and Beacon.	Burdett & Clark.....	July 29, 1884	3,780 00
Port Arthur—Construction of a Breakwater	D. Macdonald	Sept. 8, 1884	146,000 00
Port Elgin—Extension of Breakwater	D. Porter	Nov. 24, 1884	11,135 00
Lion's Head—Addition to Pier	Porter & Reed.....	do 24, 1884	4,135 00
Collingwood—Repairing Breakwater.	D. Fleming	Dec. 17, 1884	4,214 73
do Construction of an addition to Break- water	E. Murphy.....	Mar. '0, 1885	19,000 00
Kingsville—Strengthening Pier	Porter & Reed.....	Apr. 20, 1885	4,915 00

No. 1.—CONTRACTS let by the Department of Public Works, &c.—*Concluded.*

Works.	Names of Contractors.	Date of Contract.	Amount.
HARBOURS AND RIVERS—Continued.			\$ cts.
<i>Quebec.</i>			
Yamaska—Completion of Lock and construction of a Dam at Ile à Cardin	McCarron & Cameron.	July 3, 1884	26,667 00
Sault au Cochon—Construction isolated Block	Geo. Tanguay	Aug. 11, 1884	4,000 00
Newport—Supply of timber required for wharfing	J. St. Laurent & Grenier	Jan. 28, 1885	.....
St. Anne de Bellevue—Construction of a Wharf	Gobier & Dagenais	May 9, 1885	4,150 00
<i>New Brunswick.</i>			
Anderson's Hollow—Extension of Breakwater	Wallace & Steeves.....	Dec. 15, 1884	1,600 00
Hopewell Cape—Extension of Ballast Wharf	G. W. Steeves	Mar. 5, 1885	3,500 00
<i>Prince Edward Island.</i>			
Tignish—Extension of Breakwater	J. H. Myrick	Nov. 27, 1884	4,125 00
Hurd's Point—Extension of Ballast Wharf	J. Geady	May 1, 1885	3,145 00
<i>British Columbia.</i>			
Esquimalt—Completion of Graving Dock	Larkin, Connolly & Co.	Nov. 8, 1884	374,559 00
DREDGING.			
Kaministiquia River, Ont	Chas. S. Barker	July 8, 1884	20,000 00
Supply of timber required for dredging plant.....	A. Hurtau & Bro	Nov. 27, 1884	3,171 08
Constructing and placing, etc., surface condenser in dredge "St. Lawrence," in St. John Harbour.	Geo. Fleming & Sons..	May 26, 1885	2,520 00
TELEGRAPHS.			
Province of Quebec—Construction of a Telegraph Line on Grosse Ile and the Island of Orleans....	Pierre Langlois	Aug. 23, 1884	p.m. 49 50
North-West Territories—Construction of a Telegraph Office at Prince Albert.....	Campbell & McGregor.	July 18, 1884	366 00
do Construction of Telegraph Station at Clarke's Crossing and Humboldt	do	Aug. 18, 1884	2,494 00
do Transport of wire, etc., for Telegraph Line between Battleford and Edmonton.	C. J. Brydges, H. B. Co'y	Mar. 17, 1885	Swift Current to Battleford 2 cts. per lb. Swift Current to Fort Pitt 2½ cts. per lb. \$21.83 per 35 poles.
do Telegraph poles for line between Duck Lake and Carlton	Andrew Peterson.....	.....

L. C. PANET.

DEPARTMENT OF PUBLIC WORKS,
OTTAWA.

No. 2.—STATEMENT of Property Purchased by the Department of Public Works during the Fiscal Year ended 30th June, 1885.

Date of Purchase.	Vendors.	Purchaser.	Description of Property.	For what Purpose.	Area.	Price.
1884.						\$ cts.
April 7...	Thos. McAdam.....	Her Majesty.....	Lot of land on Broadway Street, in the Town of Orangeville, Ont.	Site for Dominion Building.	75 x 132 ft	1,200 00
June 27...	Jacob Bingay <i>et ux</i>	do	Lot of land on the south-west corner of John and Main Streets, in the Town of Yarmouth, N.S.	do	42 ft. 6 in. x 140 ft. 4 in.	6,000 00
July 7...	Michel Forcier	do	Part of lot 301, Parish of St. Michel d'Yamaska, P.Q.	Yamaska River Works ..	0.59 acres	59 00
Aug. 7...	A. S. McDonald.....	do	Lot of land on the south side of Main Street, in the Town of Baddeck, Cape Breton, N.S.	Site for Dominion Building.	100 x 80 ft.	1,000 00
do 22...	Robt. Musgrave.....	do	Lot of land in North Sydney ..	do ..	7,000 sq. ft.....	1,800 00
Sept. 2...	Rector and Churchwardens of St. Paul's Church, London, Ont.	do	Lot of land in the City of London, Ont., adjoining land transferred to the Government in 1870.	Extension of Custom House.	15 x 20 ft.....	5,000 00
Sept. 10...	The Municipality of Richmond, N.S.	do	Lot of land in Arichat, N.S., adjoining that sold to the Department.	Site for Dominion Building.	.....	Gift.
do 10...	The Corporation of the Town of Barrie.	do	Order vesting in Her Majesty an additional piece of land at Barrie, Ont.	do ..	270 sq. ft.....	8,000 00
Oct. 28...	La Cie du Quai de St. Jean, Ile d'Orleans.	do	Wharf and land at St. Jean, Ile d'Orleans....	.....	.....	42,000 00
1885.						
Feb. 19...	St. Lawrence Warehouse, Dock and Wharfage Company.	do	Wharf and land at Lévis, P.Q.	Immigrant Station .....	.....	1 00
May 23...	Montague Muttart.....	do	Strip of land, being on lot or Township 28, in Prince County, P.E.I.	.....	.....	88 00
June 24...	G. W. Henshaw.....	do	Island known as Ile à Gardin, 1½ miles from the Village of St. Michel d'Yamaska.	Yamaska River Works ..	.....

L. C. PANET.

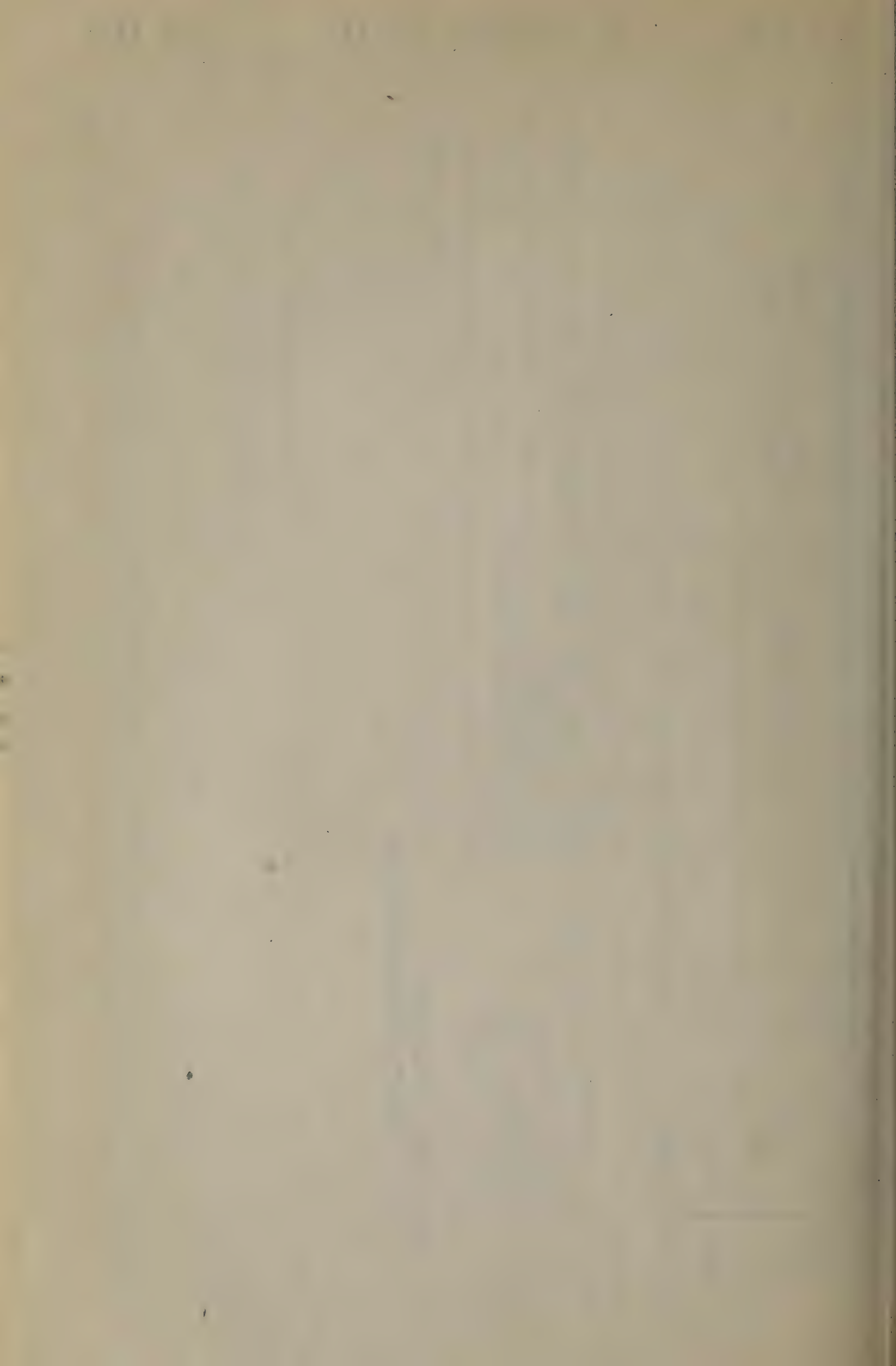
DEPARTMENT PUBLIC WORKS,
OTTAWA, 29th October, 1885.

No. 3.—STATEMENT of property Leased to or by the Department of Public Works during the Fiscal Year ended 30th June, 1886

Date of Lease.	Lessor.	Lessee.	Property Leased.	For what Purpose used.	Duration of Lease.	Rent Payable.
1885.						\$ cts.
Feb. 2...	Her Majesty	Bronson & Weston...	Part of Government Reserve, south side of Middle Street, Victoria Island, Ottawa.	.....	21 years.....	50 00 per an'm.
April 20...	do	J. R. Booth.	Part of Government Reserve at the Chaudière, in the City of Ottawa	.....	21 do	104 00 do
May 1...	John Durie & Son	Her Majesty	Renewal of lease of rooms on the 2nd and 3rd flats over their store on Sparks Street, Ottawa.	Department of Indian Affairs.	2 do	730 00 do
.....	Corporation of the City of Toronto.	do	Renewal of lease of part of water lot 39, in the City of Toronto, containing, by admeasurement, 11,765 sq. ft.	Custom House.....	21 do	621 25 do

L. C. PANET.

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, 18th November, 1885.



APPENDIX No. 24.

LIST OF SOME OF THE ACTS OF PARLIAMENT

PASSED AT THE SESSION OF 1884,

AND HAVING REFERENCE TO

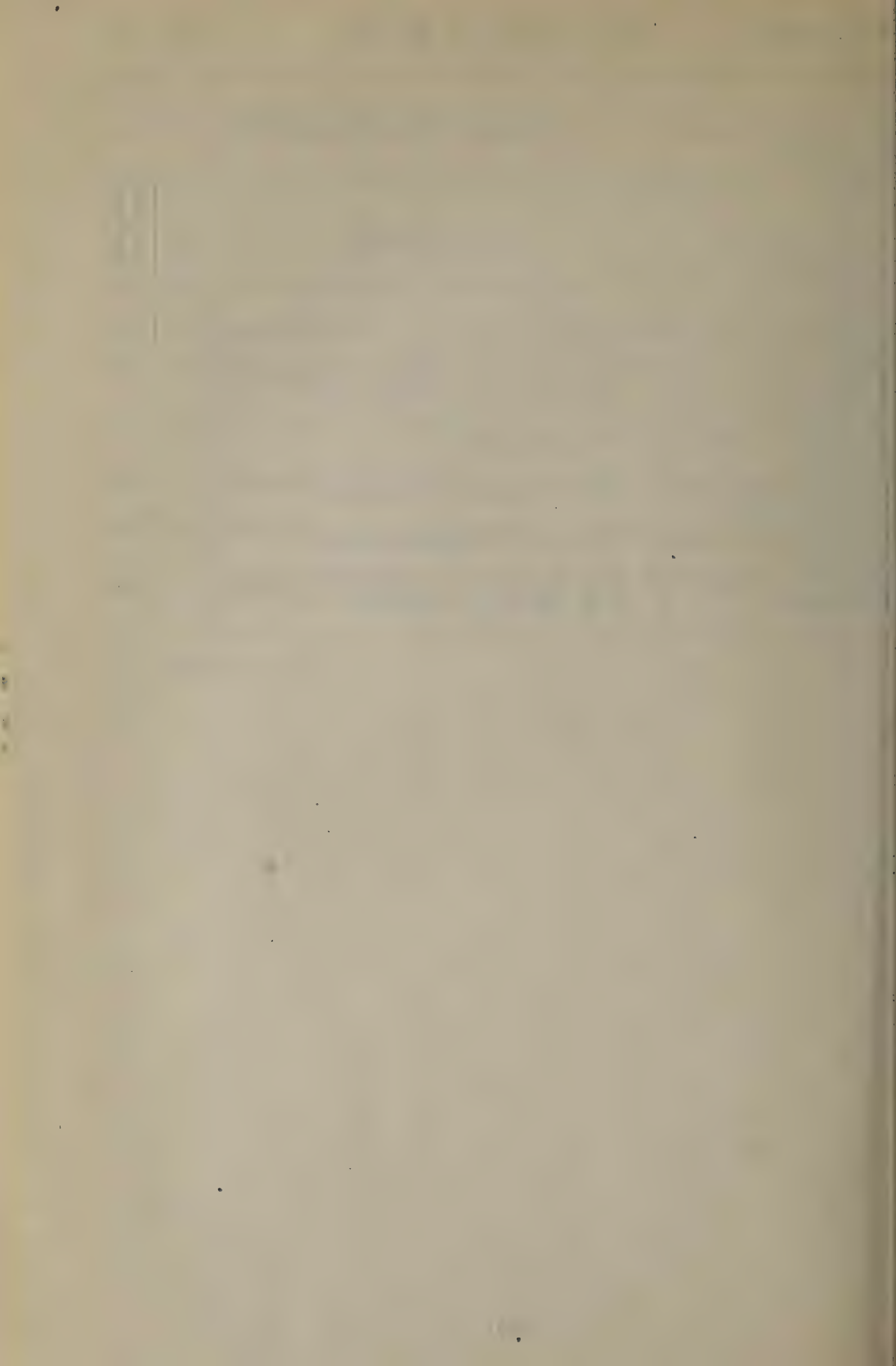
THE DEPARTMENT OF PUBLIC WORKS,

OR WORKS UNDER ITS CHARGE.

LIST of some of the Public Acts of the Parliament of Canada, passed at the Session of 1884, and having reference to the Public Works Department, or works under its charge.

Subject.	Full Title of the Statute.	Chapter.	Page in Statute Book.
Dry Docks—To encourage the construction of dry docks.	An Act to amend the Act 45 Vic., chap. 17, to encourage the construction of dry docks.	5	12
Bridges—Amending law re bridges, booms and other works constructed over or in navigable waters.	An Act to amend the law respecting bridges, booms and other works constructed over or in navigable waters, under the authority of Provincial Acts.	6	12
Civil Service of Canada—Amending Acts of 1882, 1883 and 1884.	An Act to amend and consolidate the Civil Service Acts of 1882, 1883 and 1884.	46	101
Three Rivers—Re advance of a certain sum to Harbor Commissioners, Three Rivers.	An Act to authorize the advance of a certain sum to the Harbor Commissioners of Three Rivers.	76	218
Quebec Harbor, &c.—To facilitate navigation of the River St. Lawrence.	An Act for facilitating navigation of the River St. Lawrence, in and near the Harbor of Quebec.	77	220
Public Works—Re preservation of peace in the vicinity of Public Works.	An Act further to amend "An Act for the better preservation of the peace in the vicinity of Public Works," and the Acts in amendment thereof.	80	222

L. C. PANET.



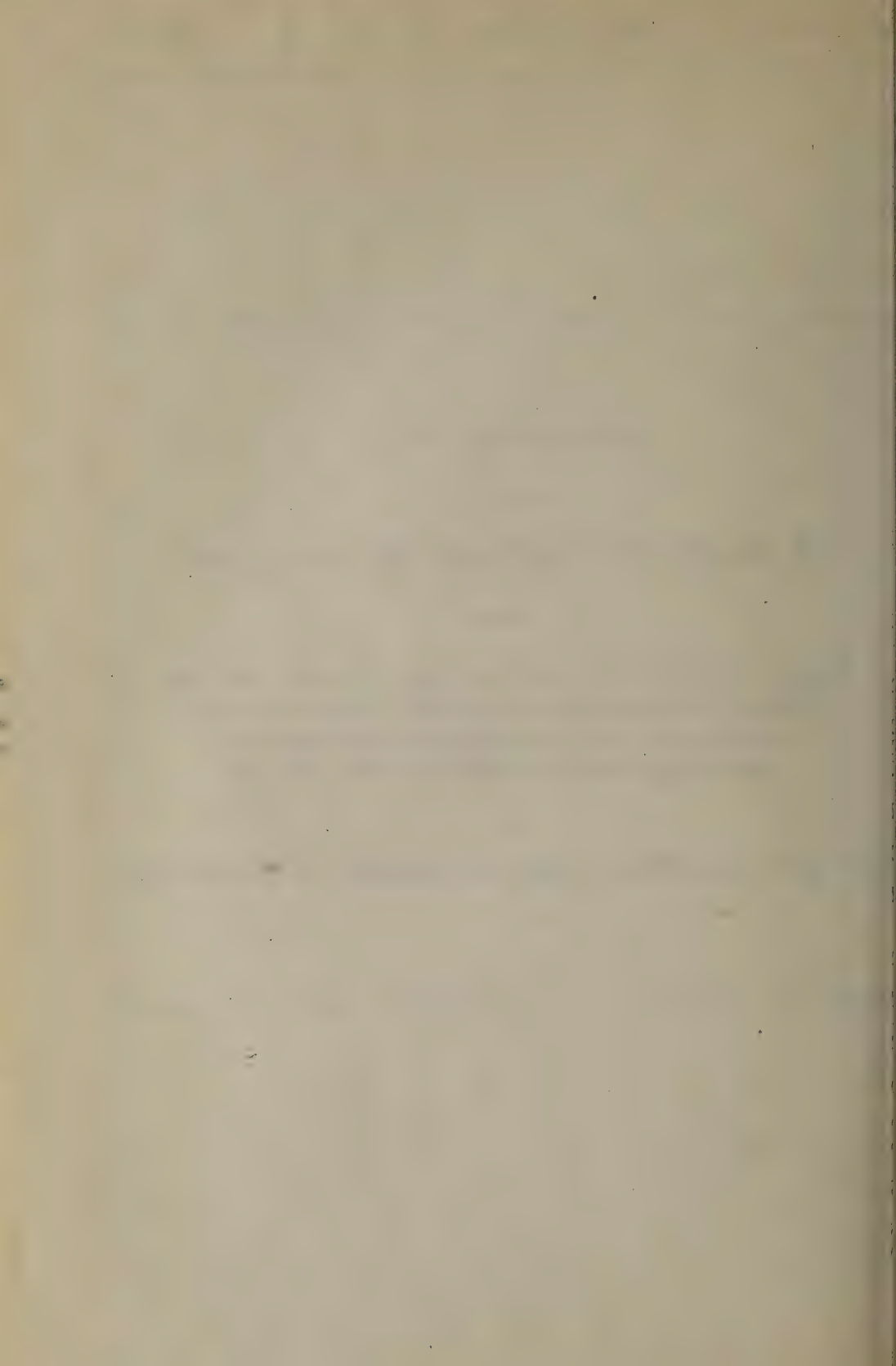
APPENDIX No. 25.

TABLES OF DISTANCES. ETC., ETC.

INLAND NAVIGATION OF CANADA ; OCEAN ROUTES
THENCE TO FOREIGN COUNTRIES ; CANADIAN LAND
ROUTES TO THE SEABOARD ; GOVERNMENT
RAILWAYS AND TELEGRAPH LINES, ETC., ETC.

BY

G. F. BAILLAIRGÉ, Deputy Minister Public Works.



APPENDIX No. 25.

PART I.

INDEX TO TABULAR STATEMENTS AND MEMORANDA RESPECTING DISTANCES AND INLAND NAVIGATION.

- No. 1. Table of distances, St. Lawrence Navigation from Straits of Belle Ile to Duluth, at head of Lake Superior.
- No. 2. Draught of water, St. Lawrence Navigation.
- No. 3. Distances between the principal places from Montreal to Quebec, along the centre line of the ship channel.
- No. 4. St. Lawrence Navigation: Levels of river and lakes above tide water at Albany and Three Rivers, according to different authorities.
- No. 5. Levels established between low tide water at Three Rivers and lowest observed water of Montreal Harbour at lower entrance of Old Lock No. 1, at foot of Lachine Canal.
- No. 6. Highest and lowest water levels, and depths at low water on the lower mitre sill of Old Lock No. 1, at foot of Lachine Canal, in the Harbour of Montreal, hitherto and now employed by Engineers of Harbour, Water Works, &c.
- No. 7. St. Lawrence Navigation: Remarks respecting dredging channel between Quebec and Montreal, and the draught of water through the channels on the main line of the St. Lawrence Navigation.
- No. 8. Lake navigation from head of Lake Superior to Three Rivers, length, breadth, depth, area and elevation above the sea at Three Rivers.
- No. 9. St. Clair Flats Ship Canal.
- No. 10. St. Mary's Falls Ship Canal.
- No. 11. Table showing the smallest locks on the several lines of Navigation; also the dimensions of the largest vessels that may pass through them.
- No. 12. Lake St. John: Length, breadth, area, elevation above sea, depth, winds, ice, &c.
- No. 13. River route from Tadousac, at the mouth of the River Saguenay, to the upper end of Lake St. John.
- No. 14. Statement showing number of trips, tonnage and crew of steamers which have called at Chicoutimi and at other places on the Saguenay, from 1840 to 1884 inclusively.
- No. 15. Statement of sea-going vessels which have loaded at, and left the ports of the Counties of Chicoutimi and Saguenay, from 1840 to 1884 inclusively.
- No. 16. River St. Lawrence and Dawson Route: From Straits of Belle Ile to Port Arthur, on north shore of Lake Superior, and thence to Winnipeg.
- No. 17. Approximate distances from mouth of Red River down to Grand Rapids, at mouth of North or Main Saskatchewan, and thence up to Fort Edmonton.
- No. 18. Remarks respecting steamers and draught of water on route between mouth of Red River and Fort Edmonton on the Saskatchewan.
- No. 19. Navigable waters: Manitoba and North-West Territories.
- No. 20. Volume of water discharged from the River Saskatchewan, and from its north and south branches.
- No. 21. Names of vessels navigating the waters of Lake Manitoba and the North-West Territories.
- No. 22. Port Nelson, Hudson Bay.
- No. 23. Table of principal rivers throughout the world, compared with the Rivers St. Lawrence and Ottawa.

(Ref. to 40,995.)

TABLES OF DISTANCES, ETC.

No. 1.—ST. LAWRENCE NAVIGATION.

FROM STRAITS OF BELLE-ILE TO DULUTH, AT HEAD OF LAKE SUPERIOR, BY WATER.

From.	To.	Sections of Navigation.	Statute Miles.	
			Inter-mediate.	Total to Straits of Belle-Île.
Straits of Belle-Île.....	Cape Whittle.....	Gulf of St. Lawrence....	240	240
Cape Whittle.....	West Light, Anticosti.....	do	201	441
West Light, Anticosti.....	Father Point.....	River St. Lawrence.....	203	643
Father Point.....	Rimouski	do	6	649
Rimouski.....	Bic	do	12	661
Bic	Île Verte.....	do	39	700
Île Verte (opp. Saguenay).....	Quebec	do	126	826
Quebec	Three Rivers.....	do to Tide-water	74	900
Three Rivers.....	Montreal	do	86	986
Montreal.....	Lachine	Lachine Canal.....	8 $\frac{1}{2}$	994 $\frac{1}{2}$
Lachine	Beauharnois	Lake St. Louis.....	15 $\frac{1}{2}$	1,009 $\frac{1}{2}$
Beauharnois	Ste. Cécile.....	Beauharnois Canal.....	17 $\frac{1}{2}$	1,021
Ste. Cécile	Cornwall	Lake St. Francis.....	32 $\frac{1}{2}$	1,053 $\frac{1}{2}$
Cornwall	Dickinson's Landing.....	Cornwall Canal.....	11 $\frac{1}{2}$	1,065 $\frac{1}{2}$
Dickinson's Landing.....	Farran's Point.....	River St. Lawrence.....	5	1,070 $\frac{1}{2}$
Farran's Point	Upper end Croyle's Island.....	Farran's Point Canal.....	3	1,071 $\frac{1}{2}$
Upper end Croyle's Island.....	Williamsburg or Morrisburg	River St. Lawrence.....	10 $\frac{1}{2}$	1,081 $\frac{1}{2}$
Williamsburg	Rapide Plat.....	Rapide Plat Canal.....	4	1,085 $\frac{1}{2}$
Rapide Plat	Point Iroquois Village.....	River St. Lawrence.....	41 $\frac{1}{2}$	1,090
Point Iroquois Village.....	Upper end Presqu'île.....	Point Iroquois Canal.....	3	1,093
Presqu'île.....	Point Cardinal, Edwardsburg.....	Junction Canal.....	2 $\frac{1}{2}$	1,095 $\frac{1}{2}$
Point Cardinal.....	Head of Galops Rapids.....	Galops Canal.....	2	1,097 $\frac{1}{2}$
Galops Rapids.....	Prescott.....	River St. Lawrence.....	7 $\frac{1}{2}$	1,105
Prescott.....	Kingston.....	do	59	1,164
Kingston.....	Port Dalhousie	Lake Ontario.....	170	1,334
Port Dalhousie.....	Fort Colborne.....	Welland Canal.....	27	1,361
Port Colborne.....	Amherstburg.....	Lake Erie.....	232	1,593
Amherstburg	Windsor.....	River Detroit.....	18	1,611
Windsor.....	Foot of St. Mary's Island.....	Lake Ste. Claire.....	25	1,636
Foot of St. Mary's Island.....	Sarnia	River Ste. Claire.....	33	1,669
Sarnia.....	Foot of St. Joseph's Island.....	Lake Huron.....	270	1,939
Foot of St. Joseph's Island.....	Foot of Sault Ste. Mary.....	River St. Mary	47	1,986
Sault Ste. Mary	Head of Sault Ste. Mary.....	Sault Ste. Marie Canal...	1	1,987
Head of Sault Ste. Mary.....	Point aux Pins.....	River St. Mary.....	7	1,994
Point aux Pins	Duluth.....	Lake Superior	390	2,384

Of the 2,384 miles from the Straits of Belle-Île to the Head of Lake Superior, 71 $\frac{1}{2}$ miles are artificial navigation, and 2,312 $\frac{1}{2}$ open navigation.

Straits of Belle-Île to Liverpool, 1,942 geographical, or 2,234 statute miles.

The total ascent from tide-water to Lake Superior is now assumed to be not less than 602 $\frac{1}{2}$ feet above tide-water at Three Rivers, and 601.78 above tide-water at New York, according to the most recent information obtained up to the 7th April, 1883.

For details respecting the various sections of rivers and canal navigation, viz.:—the intermediate and total distances; the intermediate and total rise above tide-water; the dimensions and depths of each canal, and of each lock &c., on the St. Lawrence route of navigation and its tributaries, &c., see tabulated profiles Nos. 4, 5, 13, 14, 15, 29 of Appendix No. 30 of General Report on Public Works, 1880 to 1882.

For dates of opening and closing of navigation, see Appendix No. 18.—G.F.B.

No. 2.—Draught of Water—St. Lawrence Navigation.

Sections of Navigation.	Minimum depth available in 1884.	Depth when work now in progress is completed. — See Remarks at No. 7.
Dredged Channel—Quebec to Montreal—in progress	25	27½
Lachine Canal—Enlargement completed	12	12
Beauharnois Canal—To be enlarged or another canal to be constructed on north shore opposite	9	12
Cornwall Canal—Enlargement commenced in 1876	9	12
Williamsburg Canals—Enlargement commenced in 1884	9	12
Murray Canal—Completed; not on main line of navigation	10	10
Burlington Bay Canal—Not on main line of navigation	10	10
Welland Canal—Enlargement completed	12	12
Sault Ste. Marie Canal—State of Michigan—Enlargement completed.....	16·8	16·8

No. 3.—DISTANCES OF PLACES BETWEEN MONTREAL AND QUEBEC.

Measured in English Statute Miles along the centre line of the Ship Channel.

From.	To.	Statute Miles.	
		Inter-mediate.	Total.
Montreal, Island Wharf, opp. Custom House	Longue Pointe	6½ ¹ / ₁₀	6½ ¹ / ₁₀
Longue Point	Pointe aux Trembles, <i>en haut</i>	4	10½ ¹ / ₁₀
Pointe aux Trembles, <i>en haut</i>	Varennes.....	3½ ⁴ / ₁₀	13½
Varennes.....	Cap St. Michel	2½ ³ / ₁₀	15½ ¹ / ₁₀
Cap St. Michel	Verchères	5½ ³ / ₁₀	21½ ¹ / ₁₀
Verchères.....	Plum Island Light.....	1½ ¹ / ₁₀	22½ ¹ / ₁₀
Plum Island Light	Contrecoeur Channel, upper entrance	6½ ¹ / ₁₀	28½ ¹ / ₁₀
Contrecoeur Channel, upper entrance.....	Lavaltrie	1½ ³ / ₁₀	30½
Lavaltrie	Contrecoeur Channel, lower entrance.....	4½ ³ / ₁₀	35
Contrecoeur Channel, lower entrance.....	Lanoraie	1½ ³ / ₁₀	36½ ³ / ₁₀
Lanoraie.....	Sorel, opposite Lighthouse	8½ ¹ / ₁₀	45
Sorel, opposite Lighthouse	Ile de Grace Light.....	3½ ⁴ / ₁₀	48½
Ile de Grace Light	Stone Island Light.....	3½	52½
Stone Island Light	Lightship No. 1.....	5½	57½
Lightship No. 1	do No. 2.....	2½ ³ / ₁₀	60½ ³ / ₁₀
do No. 2	White Buoy	4½ ³ / ₁₀	64½ ³ / ₁₀
White Buoy	Lightship No. 3.....	6½ ³ / ₁₀	71½ ³ / ₁₀
Lightship No. 3	Port St. Francis	4½ ² / ₁₀	75½
Port St. Francis	Three Rivers	6½	82
Three Rivers	Becancour, Iron Buoy at Bend	5½ ³ / ₁₀	87½ ³ / ₁₀
Becancour, Iron Buoy at Bend	Champlain	6	93½ ¹ / ₁₀
Champlain	Ratisseau Wharf	7½ ³ / ₁₀	101½
Ratisseau Wharf	Cap Levrant	4	105½
Cap Levrant	Cap à la Roche, centre of new channel....	2½ ¹ / ₁₀	108½
Cap à la Roche, centre of new channel	Cap Charles	2½ ¹ / ₁₀	111
Cap Charles	Richelieu Rapids	9	120
Richelieu Rapids	Platon Wharf	4½ ³ / ₁₀	124½ ³ / ₁₀
Platon Wharf	Ste. Croix.....	5½ ⁵ / ₁₀	130½
Ste. Croix	Ecureuils.....	1½	132
Ecureuils.....	Pointe aux Trembles, <i>en bas</i>	7	139
Pointe aux Trembles, <i>en bas</i>	Cap Rouge	12	151
Cap Rouge	Quebec, Custom House Wharf	9½	160½

No. 4.—ST. LAWRENCE NAVIGATION.

LEVELS of River and Lakes above Tide Water at Albany and Three Rivers, according to the following authorities :—

Sections of Navigation.	Above Tide Water at Albany.	Above Tide Water at Three Rivers.						
	U.S. Engineers, 1816, 1876, 1882, 1883.	Admiralty Charts, 1817, 1818, 1822, 1823.	Rubidge, 1846.	Ottawa Ship Canal Survey — Shanley, 1858.	Ottawa Ship Canal Survey — Clarke, 1859.	Department of Public Works Report, 1867.	Canal Commission Report, 1871.	Department of Public Works Report, 1882.
Albany, River Hudson....	a.b. 0'00	.....	.....	.....	.....	.....	.....	.....
Three Rivers, River St. Lawrence .....	.....	0'00	0'00	0'00	0'00	0'00	0'00	0'00
Montreal, River St. Lawrence .....	.....	.....	12'75	13 00	12'75	13'25	11'60	11'75
Kingston, Lake Ontario .	.....	1817. 232'20	234'00	.....	.....	234'00	234'00	240'00
Oswego do ...	245'15	.....	.....	.....	.....	.....	.....	.....
Lake Erie, Survey of 1816	564 85	.....	.....	.....	.....	.....	.....	.....
do do 1876	571 68	.....	.....	.....	.....	.....	.....	.....
do Report of 1882	568'57	.....	.....	.....	.....	.....	.....	.....
do Canadian authorities .....	.....	1818. 564'00	564'00	.....	.....	564'00	564'00	566'75
Lake Ste. Claire .....	.....	.....	.....	.....	.....	572'00	568'00	570'75
Lake Huron .....	.....	1882. 590'00	594'00	.....	.....	578'00	574'00	576'75
Georgian Bay, Lake Huron	.....	594'00	594'00	572'00	574'00	578'00	578'00	575'75
Lake Michigan .....	.....	.....	.....	.....	.....	580'00	578'00	578'75
Lake Superior, Sault Ste. Marie	Mean Elevation above tide water at New York. c.f. 601'78	1823. 627'00	.....	.....	.....	600'00	600'00	602'75

REMARKS.

(a.) The tide water at Albany signifies the mean low water, which is about one foot above extreme low water.—See telegram from Major D. L. Malloy, Deputy State Engineer and Surveyor, State of New York, No. 32,607, of 12th March, 1883.

MEAN RISE AND FALL OF TIDE AT ALBANY AND NEW YORK.

(b.) According to a telegram received 23rd April, 1883, from John G. Parke Acting Chief of Engineers at Washington, U.S., the mean rise and fall of the tide at Governor's Island, Harbour of New York, is 4'40 feet, and at Albany it is 2'32 feet See No. 33,865.

DECLIVITY OF THE RIVER HUDSON FROM ALBANY TO NEW YORK.

(c.) According to a letter dated Washington, U.S., 1st May, 1883, from Richard D. CUTTS, Assistant in charge of United States Coast and Geodetic Survey Office, the difference of level during low water, between Governor's Island, Harbour of New York, and Albany, or the total declivity between the two places, is 4'27 feet. See No. 34,047. See Remarks d, e, f, next page.

No. 5.—THREE RIVERS TO MONTREAL.

ELEVATION above lowest tide water observed at Three Rivers, as established by levels taken during the construction of the North Shore Railway, 1876 to 1879, and in February, 1883.

Designation.	Datum— North Shore Railway, Montreal and Quebec.	Rise.	
		Inter- mediate.	Above low water, Three River.
Lowest water observed at Three Rivers by R. Steckel, up to 19th September, 1881.....	d 39·55	d 0·00	d 0·00
Top of S.E. corner of Richelieu Co.'s wharf at Three Rivers.....	56·55	17·00	17·00
Bench mark, top of railway bridge, River St. Maurice, 2 miles up stream.....	90·00	33·45	50·45
Bench mark, top of railway bridge, at Terrebonne.....	81·17	8·83	41·62
Top of coping, old entrance Lock No. 1, of Lachine Canal, Montreal, distance from railway bridge, Terrebonne, about 19 miles.....	67·19	13·98	27·64
Lowest water recorded at Montreal since September, 1852 : on 8th-9th November, 1879, and 6th October, 1881, at foot of Lachine Canal, old Lock No. 1.....	e 51·28	e 15·51	e 11·73
Top of lower mitre sill of old Lock No. 1, at foot of Lachine Canal, Montreal.....	35·86	Depth of w'r on lower sill, Lock No. 1. e 15·42	—3·69
Low water level adopted by Harbour Commissioners at present : Depth on mitre sill, 16½; previous lower-water level, Har- bour Commissioners : on mitre sill, 17; summer water datum of the Montreal Water Works : on mitre sill, 19.		Height of w'r above lower sill of Lock No. 1.	
Top of coping, old Lock No. 1, above lower mitre sill.....	67·19	31·33	27·64
Flood level of highest water above Victoria Bridge, April, 1858. Summer water of Flats of Lake St. Peter, 10·50 feet : corres- ponds to a depth of 17 feet on the lower mitre sill of Lock No. 1, Montreal.....	79·61	43·75	40·06

REMARKS—Continued.

See preceding table No. 4, St. Lawrence Navigation.

(d.) The tide water at Three Rivers is the lowest water recorded up to 19th September, 1881. It is 17 feet below the bench mark on the south-east corner of the wharf of the Richelieu and Ontario Company at Three Rivers.—See memoranda, dated 21st February, 1883, No. 33,687.

(e.) The elevation of low water surface, say 11·73 feet, at Montreal, above tide water at Three Rivers, represents a depth of 15·42 feet of water on top of the mitre sill of old Lock, No. 1, at foot of Lachine Canal.

(f.) The mean elevation of Lake Superior above the sea refers to the level of mean tide at New York.—See telegram from Major Farquhar, Engineer, dated Detroit, 7th April, 1883, No. 33,363.

G. F. B.

No. 6.—HARBOURS OF THREE RIVERS AND MONTREAL.

High and low water levels referred to tide water at Three Rivers and to top of lower mitre sill old Lock No. 1, at foot of Lachine Canal, Montreal.

Designation.	Datum— Montreal Harbour Engineers.	Datum— North Shore Railway Engineers.	Above top of lower mitre sill of old Lock No. 1, Lachine Canal, Montreal.	Elevation above tide water, Three Rivers
Lowest water observed at Three Rivers, 19th September, 1881.....	84·69	39·55	3·69	0·00
Top of lower mitre sill, old Lock No. 1, at lower entrance of Lachine Canal.....	81·00	35·86	0·00	(—)3·
Lowest water observed at Montreal, from September, 1852, to 8th-9th November, 1879, and to 6th October, 1881.....	96·42	57·28	15·42	+11·73
Low water, Montreal Harbour, as lately adopted by Harbour Commissioners.....	97·50	52·36	16·50	+12·81
Low water, Montreal Harbour, as previously adopted.....	98·00	52·86	17·00	+13·31
Summer water datum of Montreal Water Works— T. C. Keefer.....	100·00	54·86	19·00	+15·31
Level of coping of old Lock No. 1.....	112·33	67·19	31·33	+27·64
Flood level of highest water above Victoria Bridge, April, 1858.....	124·75	79·61	43·75	+40·06
Ordnance bench mark on ramp of revetment wall in front of the Bonsecours Market— Per Engineers of Shearer scheme.....	119·63	74·49	38·63	+34·94
Per John Sutcliffe, C.E.....	119·61	74·47	38·61	+34·92
Per Montreal Harbour Engineers.....	119·57	74·43	38·57	+34·88

No. 7.—ST. LAWRENCE NAVIGATION.

REMARKS respecting dredged channel between Quebec and Montreal, and the draught of water through the Canals on the main line of the St. Lawrence Navigation.

DREDGED CHANNEL BETWEEN QUEBEC AND MONTREAL.

The deepening of the ship-channel between Montreal and Quebec to 25 feet at low water, was completed in 1882. By the Act 46 Vic., chap. 38, assented to on 25th May, 1883, authority was given to raise the sum of \$900,000 to continue the dredging to a depth of 27½ feet. Dredging was commenced by the Montreal Harbour Commissioners on the 18th June, 1883, and has been vigorously carried on up to the present time, except for the necessary interruption during winter. A description of the work will be found in Appendix No. 10, pages 199-203. The width of the dredged portions of the channel varies from 350 to 450 feet.

CANALS—RIVER ST. LAWRENCE ROUTE.

When the enlargement of the canals was decided upon in 1871, the scale of navigation of the St. Lawrence route, was throughout fixed at an available depth of twelve feet of water. This was authorized to be carried out in 1873.

In 1875, strong representations were made of the desirability of deepening the various channels for the passage of vessels drawing fourteen feet of water.

This was assented to by the Government, and orders were accordingly given to place the foundations of all permanent structures, on those parts of the works not then under contract, at a depth corresponding to 14 feet of water on the mitre sills of the locks.

The orders thus given applied to all the principal works on the main line of navigation between Lake Erie and the City of Montreal.

The locks on the enlarged canals throughout, are to be 275 feet long between the gates, 45 feet in width, and, when completed, are to have a depth of 14 feet of water on the sills.

This will enable vessels of almost any ordinary build to pass, carrying fully one thousand tons burden; but as the tendency seems to be towards increasing the breadth of beam and sectional area of freight vessels, it is probable that the canals will ere long be navigated by a class of vessels capable of carrying fully 1,500 tons.

For preceding and further details, see pages 4 and 5, Report of John Page, Chief Engineer of Canals, dated 16th February, 1880, published the same year.

SAULT STE. MARIE CANAL.

According to a telegram, No. 33,238, dated 5th April, 1883, from Major Farquhar, Engineer in charge of this work, the maximum lift of the new lock of the enlarged canal is 18.6 feet, and the minimum lift 16.8 feet.

G. F. BAILLAIRGÉ,
D. M. P. W.

No. 8.—LAKE NAVIGATION.

LAKE SUPERIOR TO TIDE-WATER.

Names of Lakes, and of Rivers connecting the same.	STATUTE MILES.			DEPTH IN FEET.		Area in Square Miles.	Elevation above sea, at Three Rivers.
	Greatest length.	Greatest breadth.	Average breadth.	Greatest.	Mean.		
							Feet.
Superior	390	160	80	.....	900	32,000	602 $\frac{3}{4}$
St. Mary's River	35	4	1	60	30	.....	584 $\frac{1}{2}$
Michigan	345	84	58	.....	1,000	22,400	578 $\frac{1}{2}$
Green Bay	100	25	18	.....	500	2,000	578 $\frac{1}{2}$
Mackinaw Straits	Not added below.	20	10	200	40	.....	578 $\frac{1}{2}$
Georgian Bay							
Huron	130	55	40	.....	500	.....	576 $\frac{3}{4}$
St. Claire River	270	105	70	900	450	23,000	576 $\frac{3}{4}$
St. Claire Lake	33	.....	.....	50	35	.....	.....
River Detroit	25	25	20	27	15	360	570 $\frac{1}{4}$
Lake Erie	25	3	1	37	20	.....	.....
Niagara River	250	60	38	204	90	10,000	566 $\frac{3}{4}$
Lake Ontario	35	3	1	.....	30	.....	.....
Lake St. Francis	190	52	40	600	412	6,700	240
Lake St. Louis	38	5	4	80	36	132	142
Lake St. Peter	15	7	5	68	30	75	58
River St. Lawrence, connecting Lakes between Kingston and Three Rivers	30	9	7	40	8	200	0
	186	.....	.....	.....	20	.....	.....
Total length of Lake Navigation...	2,112	Inclusive of River portions				96,877	.....
do do	1,778	Exclusive of River portions .....				.....	.....

No. 9.—ST. CLAIR FLATS SHIP CANAL, MICHIGAN, U. S.

This canal was projected in 1866, with a view to obtaining a straight channel across St. Clair Flats, 13 feet deep, 300 feet wide, and provided on each side with a dike 7,300 feet long. The dikes to consist of timber cribs resting on upon piles driven into the original bottom of the shoal, and filled with material dredged from the channel between them, each dike being protected on both sides by sheet-piling. The work was completed, according to this project, in 1871:

The project was modified in 1873, so as to further improve the mid-channel to a depth of 16 feet, and width of 200 feet. This modification was completed in 1874.

No. 10.—ST. MARY'S FALLS SHIP CANAL.

This canal, which overcomes the rapids in the St. Mary River, connecting the waters of Lakes Huron and Superior, is situated in the State of Michigan, and was first projected in 1837. The canal was not, however, commenced until 4th June, 1853, and the first boat passed through the old canal on 18th June, 1855. Cost of old canal to 14th May, 1885, \$999,802.46. In 1870 the enlargement of the canal was commenced, and it was opened to navigation on 1st September, 1881, but not completed until 1882, up to which time the cost of the enlargement had been \$2,405,000. The upper reach of the enlarged canal is 5,500 feet long; least width 108 feet; width at upper entrance, 500 feet. The new lock of the enlarged canal is 515 feet long between gates, 80 feet wide in chamber, 60 feet wide at the gates, with 16 feet depth of water on sills during mean low water; total lift varies from 16½ to 18 feet. The two old locks at the foot of the canal are each 350 feet long, 70 feet wide at top, 61 feet wide at bottom of chamber, 70 feet wide between gates, with 12 feet depth of water on sills.

Years.	Gross Receipts.	Tonnage.	No. of Sail Vessels.	No. of Steamers.	No. of Passages.	Opened.	Closed.
1855.....	\$ cts. 4,374 66	106,296	.....	.....	.....	June 18.....	Nov. 23.
1856.....	7,575 78	101,458	.....	.....	.....	May 4.....	do 28.
1857.....	9,406 74	180,820	.....	.....	.....	do 9.....	do 30.
1858.....	10,848 80	219,819	.....	.....	.....	April 18.....	do 20.
1859.....	16,941 84	352,642	.....	.....	.....	May 3.....	do 28.
1860.....	24,777 82	403,657	.....	.....	.....	do 11.....	do 28.
1861.....	16,672 16	276,639	.....	.....	.....	do 3.....	do 14.
1862.....	21,607 17	359,612	.....	.....	.....	April 27.....	do 27.
1863.....	30,574 44	507,434	.....	.....	.....	do 28.....	do 24.
1864.....	34,287 31	571,438	1,045	366	1,411	May 2.....	Dec. 4.
1865.....	22,339 64	409,062	602	395	997	do 1.....	do 3.
1866.....	23,069 54	458,530	555	453	1,008	do 5.....	do 3.
1867.....	33,515 54	556,898	839	466	1,305	do 4.....	do 3.
1868.....	25,977 14	432,563	817	338	1,151	do 2.....	do 3.
1869.....	31,579 96	524,884	939	399	1,388	do 4.....	Nov. 29.
1870.....	41,896 43	690,825	1,397	431	1,828	April 29.....	Dec. 1.
1871.....	33,865 45	762,100	1,064	573	1,637	May 8.....	Nov. 29.
1872.....	41,232 44	914,735	1,212	792	2,004	do 11.....	do 26.
1873.....	44,943 18	1,204,445	1,549	968	2,517	do 5.....	do 18.
1874.....	38,922 97	1,070,857	883	901	1,734	do 12.....	Dec. 2.
1875.....	41,199 04	1,259,533	569	1,464	2,083	do 12.....	do 2.
1876.....	46,867 30	1,541,676	684	1,733	2,417	do 8.....	Nov. 26.
1877.....	44,351 43	1,439,215	1,401	1,050	2,451	do 2.....	do 30.
1878.....	49,437 00	1,667,136	1,091	1,476	2,567	April 8.....	Dec. 3.
1879.....	41,385 63	1,677,071	1,403	1,618	3,121	May 2.....	do 3.
1880.....	44,552 78	1,734,890	1,718	1,735	3,503	April 28.....	Nov. 15.
1881.....	Collection of tolls discontinued, June 9, 1881.	2,092,757	1,706	2,117	4,004	May 7.....	Dec. 5.
1882.....		2,468,088	1,663	2,739	4,774	April 21.....	do 3.
1883.....		2,042,259	1,458	2,620	4,315	May 2.....	do 11.
1884.....		2,997,837	1,710	3,608	5,689	April 23.....	do 10.

Until the 9th June, 1881, the canal was owned and operated by the State of Michigan, the tolls collected being applied to defray the operating expenses. At 9 a.m. on that day the ownership and control were transferred to the United States, and thereafter the canal was free.

The tonnages given in the table are to be understood as "registered tonnage." The "freight" tonnages differ considerably from this column, but it is only since the canal passed under control of the United States that a distinction between the two has been made in the canal records.

In addition to those enumerated under the heads "Sail Vessels" and "Steamers," the column "No. of Passengers" includes all passages of the canal by rafts and other unregistered craft.

In 1879 the number was	100
1880 do	50
1881 do	181
1882 do	372
1883 do	237
1884 do	371

A change in the laws, prescribing the manner of computing the tonnage for register, went into effect in 1883, the result being to reduce the amount of registered tonnage below that of 1882, while, as a matter of fact, the actual tonnage ("freight" tonnage) passing the canal in 1883 exceeded that of 1882 by 237,584 tons, and in 1884 there was a further excess of 605,898 tons, thus:—

1882 Registered tonnage, 2,468,088.	Freight tonnage, 2,029,520
1883 do 2,042,259.	do 2,267,105
1884 do 2,997,837	do 2,873,903

See No. 63,286, from Brig.-Genl. Poe, U.S.A.

No. 11.—TABLE showing the smallest locks on the several lines of navigation; also the dimensions of the largest vessels which may pass through them.

Name of Canal.	Dimensions of Lock in Feet.			Dimensions of Vessels in Feet			Tonnage of Vessels.
	Length.	Breadth.	Depth of water on Sills.	Length.	Breadth.	Draught of water when Loaded.	
Lachine.....	270	45	12	250	44	12	1,000
Beaubarnois.....	200	45	9	180	44	9	700
Cornwall.....	200	55	9	180	54	9	750
Williamsburg.....	200	45	9	180	44	9	700
Welland.....	270	45	12	250	44	12	1,000
St. Ours Lock	200	45	7	180	44	7	600
Chambly.....	118	23½	7	110	23	6½	230
Rideau.....	134	33	5	120	31½	4½	250
St. Anne's.....	200	45	9	180	44	9	700
Carillon.....	200	45	9	180	44	9	700
Grenville.....	200	45	9	180	44	9	700
Calbute.....	200	45	6	180	44	6	550
St Peter's.....	200	49½	18	199	49	17½	1,000
River Trent.....	131	32½	4½				
<i>United States Canals.</i>							
Erie.....	110	18	7	102	17½	6½	220
Champlain.....	100	18	5	92	17½	4½	80
Sault Ste. Marie (new)...	515	80	16	490	58	16	To pass several vessels.
do (old)....	350	70	12	320	67	12	2,000

For details respecting the various canals, see tabulated profiles Nos. 4, 5, 12, 13, 14, 15 and 29, of Appendix No. 30, in General Report on Public Works, 1867 to 1882.

No. 12.—LAKE ST. JOHN.

The lake is about 100 statute miles on an air line from Quebec; $41\frac{1}{2}$ statute miles, by the shortest road, from Chicoutimi, and 110 97 statute miles from Tadousac, *viâ* the Petite Décharge and the River Saguenay.

Greatest length, from Belle-Rivière, near foot of lake and at its south-east end, up to outlet of River Mistassini, at the north-west end, or towards head of lake..... $27\frac{3}{4}$ statute miles.

Greatest width across the lake from outlet of the River Péribonca to the outlet of the River Ouïatchouan, or from north to south along the Meridian..... 20 statute miles.

Width on Meridian across centre of lake..... $17\frac{1}{2}$ statute miles.

Contour of lake, per map of 1880, by Commissioner of Crown Lands, Quebec..... 85 statute miles.

Area of lake, per E. E. Taché, Deputy Commissioner of Crown Lands, Quebec..... 365.40 miles.

Elevation of lake above the sea, according to report of A. L. Light, Chief Engineer Government Railways, Quebec, dated 8th March, 1881..... 278 feet.

Elevation of lake above the sea, per map of 1880..... 300 feet.

Elevation of lake above the sea, per Richardson, at mouth of Ashuapmouchouan, in June, 1870..... 293 feet.

Depth of lake is said to vary generally from 3 feet at one mile from shore, to 12 and 54 feet at $1\frac{1}{2}$ to 3 miles from shore, and to 60 feet towards the middle of the lake..... 3 to 60 feet.

See Note S, Part III, Appendix No. 8, of General Report on Public Works, 1867 to 1882.

Bouchette, in his Topographical Dictionary, represents the depth of the lake as being 240 feet at centre.

In 1884 Mr. Joseph Rosa, the Engineer in charge of the Saguenay District Works, having been instructed to ascertain the depth of the lake towards its centre, states, in a letter addressed to the Deputy Minister of Public Works, under date 18th June, 1884, that the greatest depth he found is 225 feet; and that the mean depth is from 72 to 90 feet in the deepest part of the lake.

In spring the waters of the lake rise from 15 to 34 feet above its winter level, in the course of fifteen days.

In autumn they rise 3 to 4 feet, suddenly, during high winds, but only for periods of short duration.

The spring floods retard the cultivation of considerable tracts of land around the lake, and have been the subject of great complaint.

In a letter, No. 10,666, of 29th December, 1880, from his Lordship D. Racine, Bishop of Chicoutimi, to Sir Hector L. Langevin, Minister of Public Works, it is stated that the outflow from the lake is much diminished by the Government slide and dams at the head of the Petite Décharge, wherefore he requests the Government to improve the other outlet, called the Grand Décharge.

This request was assented to, and the improvement is being proceeded with.

Hydrographic Survey.

A hydrographic survey of Lake St. John was commenced, by order of the Minister of Public Works, towards the beginning of July, 1883, in connection with its proposed

improvement for purposes of navigation. It was discontinued before winter, owing to the want of funds.

Winds.

The north-westerly and south-westerly winds are those to which the lake is most exposed.

Ice.

Ice begins to form in November, and the lake is afterwards frozen over so that it can be travelled upon with safety, with heavy loads, after the 10th of December.

Ice begins to disappear along the borders of the lake towards the middle of April.

The whole of the lake is free from ice towards the 12th of May.

Bed of Lake.

The bed of the lake, according to Sir William Logan and Mr. Richardson, one of his assistants, consists of limestone, which crops out on the western shore.

A full description of the geological features of the Lake St. John region will be found in the Report of the Geological Survey of Canada, from its commencement to 1863, the year of its publication. See extracts in Note H, Part III, Appendix No. 8, of General Report on Public Works, 1867 to 1882.

For further details respecting climate, soil, forests, settlement, &c., Lake St. John and Saguenay regions, see Appendix No. 8, General Report on Public Works, 1867 and 1882.

Overflow of Lake St. John.

Mr. Thos. Guerin, one of the Engineers of the Department of Public Works, who has devoted many years to the investigation of questions connected with hydraulics, was instructed, in 1885, to ascertain the quantity of water supplied to the lake by its tributaries, in order that a remedy may be suggested for diminishing the overflow, and the consequent inundation of the fertile lands around Lake St. John.

G. F. B.

No. 13.—RIVER ROUTE.

From Tadousac, at the mouth of the River Saguenay, to the upper end of Lake St. John, as measured on the Admiralty Chart corrected up to 1871, and on the Map published by the Department of Crown Lands in Quebec in 1880.

Names of Places.	DISTANCE IN MILES.				Width of River Saguenay in Miles.		On which side of River Saguenay.	Depths at centre of River Saguenay during Low Tide.	Anchorage.	Remarks.
	Per printed Sailing directions.		Per Chart.							
	Nautical.	Statute.	Nautical.	Statute.	Nautical.	Statute.				
Tadouac	0-00	0-00	0-75	0-86	On N.E. shore ...	Fathoms 104	Anchorage	Hills in rear 400 feet high.		
Anse à l'Eau	0-50	0-58	0-80	0-92	do	88	do	Hills in rear 1,080 feet high.		
Anse à la Barque	1-00	1-27	1-00	1-15	do	100	do			
St. Etienne Bay and River	10-50	9-00	1-15	1-32	On S.W. shore...	50	do			
St. Marguerite River .....	.....	13-00	1-00	1-15	On N. shore	72	do		
Iles St. Louis (lower end)	17-00	14-95	1-30	1-50	3 m. from S. shore	39	do			
Ile St. Barthélemi	18-00	16-50	1-20	1-38	Near N. shore ...	90	do			
River Petit Saguenay .....	.....	18-50	1-30	1-50	On S. shore	90	do		
Anse St. Jean and River	24-00	21-28	2-50	2-88	do	118	do			
Cape Eternity Cove .....	.....	28-00	32-20	2-30	On S.W. shore...	146	.....	Hills in rear of sienitic granite, 1,500 feet high.
Cape Eternity	30-00	28-50	32-78	2-00	On S. shore	145	.....		
Trinity Point .....	.....	32-00	36-80	1-70	On N. shore ...	142	.....		
Tableau .....	.....	35-00	40-25	1-30	On S. shore	118	Anchorage	Hills of sienitic granite and gneiss.	
Descente des Femmes	42-00	40-20	46-23	1-90	On N. shore	118	do			
Cap à l'Est	47-50	45-00	51-75	1-80	do	118	do			
Midway between	47-00	46-00	52-90	1-80	do	80	do	Opposite Cap à l'Ouest.		
Cap à l'Ouest or .....	.....	46-60	53-59	1-20	In channel	80	do		
Foot of Baie des Ha! Ha! .....	.....	52-40	60-26	2-50	On W. shore.....	5 near shore	do		
Head of Baie des Ha! Ha!	55-00	53-00	56-50	1-60	On N. shore	60	do			
Petits Ilets	57-00	55-00	63-25	1-50	do	34	do			
Pointe aux Roches	65-00	61-93	71-22	0-45	On S. shore	2	do			
Chicoutimi .....	.....	62-80	72-22	0-40	do	.....	do	From Chicoutimi up to Terres Rompues the breadth of the river varies from 4-tenths to 3, 2 and 5-tenths of a statute mile in width.
River Chicoutimi .....	.....	67-15	77-22	0-20	do	.....	do	
River des Vases, Terres Rompues .....	.....	68-02	78-22	to 0-50	On N. shore	2 to 1	Tide ends.	From Terres Rompues up to Lake St. John the river is interrupted by numerous rapids.	
River Shipshaw .....	.....	69-76	80-22	0-40	do	No soundings....	do		
River aux Sables .....	.....	.....	.....	.....	On S. shore	do	do	
Grand Remous or Township line of Kinojami or River des Aulnais .....	.....	73-02	83-97	0-50	On N. shore.....	do	do		

River Duclou.	76.50	87.97	.....	.....	do	.....	do	.....	In a westerly direction, at E. end of Lake St. John.
River Gervais.	82.58	94.97	.....	.....	do	.....	do	.....	In a N. W. direction, at E. end of Lake St. John.
Décharges.	86.28	99.22	.....	.....	Between N. & S.	.....	do	.....	On a direct line across Lake to its western or upper end.
Mouth of Petite Décharge, at foot of Lake St. John.	96.50	110.97	.....	0.50	N.E. end of Lake	.....	do	.....
Mouth of Grande Décharge, at foot of Lake St. John.	97.58	112.22	.....	1.00	do	.....	do	.....
River Mistassini, <i>via</i> Grande Décharge.	119.32	137.22	.....	0.65	N.W. end of Lake	.....	do	.....
River Mistassini, <i>via</i> Petite Décharge.	118.02	135.72	.....	.....	do	.....	do	.....
River Peribonca, <i>via</i> do do	113.45	130.47	.....	0.87	Most northerly shore of Lake.	.....	do	.....
River Chomouchouan do do	118.23	135.97	.....	0.44	S.W. end of Lake	.....	do	.....
River Ouistachouan do do	113.02	129.97	.....	.....	On S. shore	do	do	.....
River Metabetchouan do do	107.80	123.97	.....	.....	do	do	do	.....

NOTE.—The distances measured on the Admiralty Chart are correct. The distances given by the sailing directions in the St. Lawrence Pilot, published in 1880, from St. Etienne Bay to Chicoutimi, appear to include $1\frac{1}{2}$ miles from Tadousac down to the mouth of the Saguenay.—G.F.B.

No. 14.—STATEMENT showing the number of Trips, Tonnage and Crew of Steamers which have called at Chicoutimi, and at other places on the Saguenay, from 1840 to 1885, inclusively.

Year.	Number of Trips.	Tonnage.	Crew.	Steamers.
1840.....	2	524	40	Unicorn.
1841.....	1	262	20	do
1842.....	1	250	20	North America.
1843.....	5	1,830	120	do and Alliance.
1844.....	4	1,165	90	Alliance.
1845.....	5	861	95	Pocahontas.
1846.....	6	1,128	112	Lady Colborne.
1847.....				
1848.....	3	1,620	60	Alliance.
1849.....	9	1,035	135	Rowland Hill.
1850.....	9	1,035	135	do
1851.....	9	1,035	135	do
1852.....	9	1,035	135	do
1853.....	15	2,145	225	Saguenay.
1854.....	15	2,145	225	do
1855.....	15	2,145	225	do
1856.....	15	2,145	225	do
1857.....	15	2,145	225	do
1858.....	15	2,145	225	do
1859.....	15	2,145	225	do
1860.....	15	2,145	225	do
1861.....	19	5,320	570	Magnet.
1862.....	19	5,320	570	do
1863.....	19	5,320	570	do
1864.....	21	5,880	630	do
1865.....	21	5,880	630	do
1866.....	31	8,505	930	do and Champlain.
1867.....	54	27,706	2,085	do and Union.
1868.....	42	19,880	1,560	do do
1869.....	77	36,593	2,255	do do
1870.....	84	39,526	2,395	Advance, St. George, Clyde, Magnet Union and Clyde.
1871.....	89	41,568	2,585	do do
1872.....	80	30,155	1,630	Union and Clyde.
1873.....	{ 14	6,100	280 }	St. George, Clyde, Union, Saguenay.
	91	77,208	2,730 }	
1874.....	81	71,148	2,400	Saguenay, Union, St. Lawrence.
1875.....	88	76,666	2,640	do do
1876.....	90	81,115	2,700	do do
1877.....	96	82,356	2,880	do do
1878.....	106	92,861	3,180	do do
1879.....	78	72,929	2,340	do and St. Lawrence.
1880.....	77	73,985	3,250	do do
1881.....	100	69,598	3,500	do Union, St. Lawrence and Chicoutimi.
1882.....	67	66,959	2,880	do and St. Lawrence.
1883.....	78	70,256	3,120	do and Union.
1884.....	85	70,095	3,400	do do
1885.....	77	60,087	3,080	St. Lawrence and Union.

* In 1847 steamers were engaged conveying immigrants from Grosse Isle to Montreal.

See No. 63,156, dated 14th November, 1885, from A. Gaboury, Secretary of the St. Lawrence Steam Navigation Company, Quebec.

No. 15.—STATEMENT of Sea-going Vessels which have loaded at and left the Ports of the Counties of Chicoutimi and Saguenay, from 1840 to 1885, inclusively, showing Number of Vessels, their Tonnage and Crew, for each year and each Port.

Year.	Chicoutimi.			Tadoussac.			Les Ecoumains.			Sault au Cochon.		
	No. of Vessels.	Tons Register.	Crew.	No. of Vessels.	Tons Register.	Crew.	No. of Vessels.	Tons Register.	Crew.	No. of Vessels.	Tons Register.	Crew.
1840.....												
1841.....												
1842.....												
1843.....												
1844.....												
1845.....												
1846.....												
1847.....												
1848.....												
1849.....												
1850.....												
1851.....												
1852.....	45	19,908	617									
1853.....	23	10,478	329									
1854.....	23	13,738	358									
1855.....	9	5,771	160									
1856.....	26	12,235	285									
1857.....	21	13,480	324									
1858.....	13	8,749	232									
1859.....	28	14,534	406									
1860.....	31	15,853	475									
1861.....	31	21,999	541									
1862.....	13	10,758	263									
1863.....	21	12,244	310									
1864.....	19	12,395	310									
1865.....	18	14,767	385									
1866.....	28	19,812	533									
1867.....	13	7,892	174									
1868.....	17	12,301	304									
1869.....	25	17,215	383	18	11,275	254	8	8,215	246			
1870.....	15	11,355	243	6	4,926	101						
1871.....	15	11,714	242	4	2,057	50						
1872.....	34	22,077	494	1	531	12						
1873.....	31	19,826	458	3	1,715	38						
1874.....	44	25,270	620	7	3,170	79	6	3,127	76	1	498	14
1875.....	34	17,266	442	5	2,021	57	1	654	14	6	3,275	77
1876.....	28	15,682	379	3	776	29	5	1,214	61	3	1,454	35
1877.....	27	18,093	398	5	3,215	73	1	271	91	8	4,441	101
1878.....	34	23,375	505	7	2,735	77	5	1,752	59	8	3,745	102
1879.....	34	18,160	420	6	2,583	67	.....	.....	.....	5	3,631	73
1880.....	42	23,907	543	4	1,855	48	7	2,578	80	10	4,494	117
1881.....	34	19,584	431	8	4,104	96	8	3,971	104	7	3,777	85
1882.....	29	17,614	372	2	1,149	26	7	3,424	92	5	2,994	62
1883.....	36	20,831	452	4	2,306	52	4	1,729	46	10	4,512	115
1884.....	33	17,058	384	3	2,007	43	11	5,256	135	7	3,298	81
1885*.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

See No. 54,634, dated 12th December, 1884, from Hon. J. G. Blanchet, Collector of Customs, Quebec.
For further details see Appendix No. 8, General Report Public Works, 1867-1882.

* Returns for 1885 not obtained in time for publication.

No. 16.—RIVER ST. LAWRENCE AND DAWSON ROUTE.

No. 5.—From Straits of Belle Ile to Port Arthur (Prince Arthur's Landing), on north shore of Lake Superior, and to Winnipeg.

From.	To.	Sections of Route.	Statute Miles.	
			Inter- mediate.	Total to Straits of Belle-Ile.
Straits of Belle-Ile.....	Quebec.....	Gulf and River St. Lawrence.	826	826
Quebec.....	Foot of Sault Ste. Marie....	Rivers and Lakes of the St. Lawrence	1,160	1,986
Foot of Sault Ste. Marie.	Head of Sault Ste. Marie....	Sault Ste. Marie Canal	1	1,987
Head of Sault Ste. Marie.	Pointe aux Pins.....	River St. Mary.....	7	1,994
Pointe aux Pins.....	Port Arthur.....	Lake Superior.....	270	2,264
Port Arthur.....	Lake Shebandowan.....	Dawson Route, by land.....	45	2,309
Lake Shebandowan.....	Foot of Rainy River.....	Dawson Route, by chain of lakes and portages.....	192	2,501
Foot of Rainy River.....	Head of Rainy River.....	Dawson Route, by Fort Frances Canal.....	$\frac{1}{2}$	2,501 $\frac{1}{2}$
Head of Rainy River.....	North-West Angle of Lake of the Woods.....	Dawson Route, by Rainy River and Lake of the Woods.....	119 $\frac{5}{8}$	2,621
North-West Angle of Lake of the Woods.....	Fort Garry, Winnipeg.....	Dawson Route, by land.....	95	2,716

The steamboat voyage from Collingwood to Port Arthur is..... 530 Statute miles.

Length of Dawson Route, chain of lakes and portages, from Port Arthur

to Fort Garry, Winnipeg..... 452 de

Canadian Pacific Railway, from Port Arthur to Winnipeg..... 429 do

For details respecting route between Lake Superior and the Red River at Fort Garry (Winnipeg), see Reports of S. J. Dawson, C.E., dated 20th April, 1868, and 1st May, 1869, printed by order of the House of Commons of Canada, in 1868 and 1869.

Three powerful Clyde built steamships, lighted by electricity, the "Algoma," "Alberta," and "Athabasca," were placed on the route from Owen's Sound, Lake Huron, through the Sault Ste. Marie Canal, to Port Arthur, Lake Superior, by the Canadian Pacific Railway Company in 1884.

G.F.B.

No. 17.—TABLE of approximate distances between various points from Mouth of Red River, at Head of Lake Winnipeg, down to Grand Rapid, at mouth of the North or Main Saskatchewan, towards foot of Lake, and thence along the Saskatchewan up to Fort Edmonton, as per maps published in 1878, 1880, &c.

Name of Localities.	Inter- mediate distances.	Total distances from Mouth of Red River.
<i>Lake Winnipeg.</i>		
1. Mouth of Red River to Mouth of Saskatchewan, or from Head of Lake Winnipeg down to Grand Rapid towards Foot of Lake.....	260	260
<i>North of Main River Saskatchewan.</i>		
2. Mouth of Saskatchewan, on Lake Winnipeg, at Grand Rapid up to Foot of Cedar Lake.....	20	
3. Foot to Head of Cedar Lake.....	30	
4. Head of Cedar Lake to Cumberland House.....	115	
5. Cumberland House to Tobin's Rapids.....	52	
6. Tobin's Rapids to Fort à la Corne.....	92	
7. Fort à la Corne to Forks, North and South Saskatchewan.....	14	
8. Forks of Saskatchewan to Cole's Rapid.....	9	
9. Cole's Rapid to Carlton House.....	71	
10. Carlton House to Battleford, on original Pacific Railway Line.....	110	
11. Battleford to Fort Pitt.....	95	
12. Fort Pitt to Fort Saskatchewan.....	185	
13. Fort Saskatchewan to Fort Edmonton.....	20	
Total from Mouth of Red River to Fort Edmonton, at about 30 miles above intersection of original Pacific Railway Line.....		318.
		1,073

See pages 392 to 395, Note A, Appendix No. 8 of General Report on Public Works, 1867 to 1882.
G.F.B.

No. 18.—REMARKS.

The navigation between the mouth of Red River and Fort Edmonton is performed by three steamers of the Hudson Bay Company, one of which plys between Red River and Grand Falls, near Lake Winnipeg. These falls are impassable for vessels. Here the company has built a tramway, about four miles in length, to overcome the falls, which involves the transshipment of passengers and freight.

A second steamer runs from the head of the falls to Carlton House, say 400 miles.

A third steamer completes the journey, thence to Fort Edmonton, 410 miles.

The entire journey of 1,073 miles is said to occupy about a fortnight.

The depth available during low water is said to be from 3 to 4 feet or less.

For further details, see Appendix, page 65, Public Works Report, 1879-80, No. 11,090.

For distances from Prince Arthur's Landing to Winnipeg and westward by Canadian Pacific Railway, see tables of Appendix No. 30, Parts III and IV, of General Report on Public Works, 1867 to 1882.—G.F.B.

No. 19.—NAVIGABLE WATERS—Manitoba and North-West Territories.

Name of Rivers and Lakes.	Length.	Mean Width.	Mean Depth.	Remarks.
	Miles.	Feet.	Feet.	
Lake Winnipeg.....	300	The "Anson Northup," the first steamer, commenced running in 1859.
Lakes Manitoba and Winnipegosis.....	230	.....	.....
Red River (within Manitoba).....	90	.....	.....
Assiniboine River.....	350	150	4	
Souris River (Probable).....	120	100 to 135	2 to 3½	See No. 18. The "Lily," an iron steam boat belonging to the Hudson Bay Company, has been running on this river during the five past years.
Qu'Appelle River and Lakes.....	200	70 to 100	2 to 4½	
Long Lake.....	40	.....	.....
Main Saskatchewan.....	400	.....	.....
North do	800	.....	.....
South do	1,000	750 to 2000	5 to 8	
Athabaska River and Lake	£00	800	.....
Peace River	700	.....	.....
Mackenzie River and Slave Lake	1,500	1200 to 3000	20 to 300	
Little Slave Lake.....	75	.....	.....

No. 20.—RIVER SASKATCHEWAN.

EXTRACT FROM MACOUN'S WORK ON MANITOBA AND THE GREAT NORTH-WEST
PUBLISHED IN 1882.

An approximate estimate of the number of cubic feet of water passing down the South Branch, the North Branch, and the Main Saskatchewan, made by Prof. H. Y. Hind, in 1858, gives the following result:—

	Cubic feet per hour.
South Branch.....	123,425,616
North Branch.....	91,011,360
Main Saskatchewan, at Fort à la Corne.....	214,441,290
“ “ near Deering River.....	206,975,000

For particulars respecting the Saskatchewan, see pages 392 to 395 of General Report on Public Works, 1867 to 1882.

For further particulars about the Saskatchewan River, see the Report made by Prof. H. Y. Hind, and published by order of the Legislature of Canada, 1859.

No. 21.—NAMES of Vessels which were navigating the waters of Manitoba and North-West Territories in 1878 and 1879, as per Macoun's Work, published in 1882.

Name of Vessel.	Name of River or Lake Navigated.	Canadian or American Vessel.	Remarks.
Alpha	Assiniboine and Lower Red Riv.	Canadian	Owned by the Winnipeg and Western Transportation Company.
Cheyenne	do	do	
Swallow	Lower Red River	do	
Prince Rupert ..	do	do	
Keewatin	do	do	
Ellen	do	do	Owned by the Hudson Bay Company.
Colville	Lake Winnipeg..	do	
Northcote	Saskatchewan ..	do	
Lilly	do	do	
Marquette	Assiniboine	do	
Manitoba	Red River.....	American	Owned by the Kittson or Red River Transportation Company, who own also fourteen barges of 1,800 tons capacity.
Dakota	do	do	
Selkirk	do	do	
Minnesota	do	do	
Grandin	do	Independent	
			Owned by the Great Grandin Farm.

See Appendix No. 8, page 392 of General Report on Public Works, 1867 to 1882.

PORT NELSON.

No. 22.—EXTRACT FROM MACOUN'S WORK ON MANITOBA AND THE GREAT NORTH-WEST, PUBLISHED IN 1882.

Port Nelson is about eighty miles nearer to Liverpool, *viâ* Hudson Straits, than is New York. It is at the mouth of a river of the first class, carrying a body of water double that of the north and south branches of the Saskatchewan combined, and it reaches the sea through a narrow depression in the Laurentides, having a descent of about 20 inches in a mile, or, in round numbers, 700 feet in a little more than 400 statute miles from the spot where it debouches from Lake Winnipeg.

Port Nelson, moreover, is about the same distance from the edge of a vast fertile region in the North-West, exceeding 200,000,000 of acres in area, as Quebec is from Toronto.

For more than 200 years, from two to five sailing vessels on an average, frequently with war ships convoying them, have sailed annually from Europe and America to Port Nelson, or other ports in Hudson Bay, and returned with cargoes the same season *viâ* the only available route, Hudson Straits.

For details respecting the navigation of Hudson Bay, *see* Appendix No. 8, pages 390 to 392, General Report, 1867 to 1882.

For notes respecting the Arctic regions and Hudson Bay route, *see* pages 398 to 405 of the same report.

In 1884 and 1885, a vessel has been sent by the Federal Government out to Hudson Bay, to ascertain the duration of the season of navigation thereon, and the facilities of access and egress for vessels frequenting the same.—G.F.B.

No. 23.—TABLE OF PRINCIPAL RIVERS throughout the World compared with the Rivers St. Lawrence and Ottawa.

Names.	Area of Drainage in Square Miles.	Length in Miles.	Discharge in Cubic Feet per Second.			Authority.
			Low Water.	Mean.	High Water.	
Amazon	2,400,000	4,000	.....	.....	1,700,000	Encyclopædia Britannica
Mississippi	1,226,000	4,400	447,200	.....	1,270,000	C. Ellet, jun.
St. Lawrence.....	565,000	2,600	.....	900,000	.....	A. J. Russell, Esq.
Niagara.....	237,300	.....	370,589	389,000	406,000	New York State Reports.
Ganges.....	432,000	1,680	86,300	207,000	494,207	Sir C. Lyell.
Nile	520,200	2,240	23,100	220,000	.....	Encyclopædia Britannica.
Ohio, at Wheeling.	25,000	.....	1,400	.....	260,277	C. Ellet, jun.
Thames	5,000	215	1,330	.....	7,900	Encyclopædia Britannica.
Rhone	38,000	560	7,000	21,000	204,000	D'Aubuisson.
Rhine.....	88,000	700	13,400	33,700	164,000	do
Ottawa (Grenville)	80,000	700	35,000	85,000	150,000	Ottawa Survey.
French River.....	4,700	.....	9,500	.....	.....	do

See Report of T. C. Clarke, C.E., 2nd January, 1860, on Ottawa Ship Canal Survey.

APPENDIX No. 25.

PART II.

TABLE OF DISTANCES, ETC., ETC.

OCEAN ROUTES

BETWEEN THE

Principal Ports of Canada and United States,
in North America,

AND THOSE OF

FOREIGN COUNTRIES.

APPENDIX No. 25—*Continued.*

PART II.

INDEX TO TABLES OF DISTANCES.

- No. 1.—Quebec to Liverpool *via* Straits of Belle-Ile and Malin Head, north of Ireland.
- No. 2.—Head of Lake Superior to Liverpool *via* Straits of Belle-Ile and north of Ireland.
- No. 6.—Distances to Liverpool from Halifax, N.S., St. John, N.B., Portland, Me., and Quebec.
- No. 7.—Principal sea-ports of North America to Galway, Liverpool, Havre, Havana and Rio Janeiro.
- No. 8.—Canadian and Brazilian Mail Line of Steamships.
- No. 9.—The principal ocean steam routes throughout the world, from England to the West or to North America, West Indies, South America, Asia, &c.
- No. 10.—The principal ocean steam routes throughout the world, from England to the East or to India, China, Japan and Australia, by overland route.
- No. 11.—The principal ocean steam routes throughout the world, from England to the East by the Cape of Good Hope.
- No. 12.—Table of latitudes and longitudes of principal Canadian ports.
- No. 13.—Great circle of air line distances from principal ports of North America and Newfoundland to England and Japan.
- No. 14.—Definition of geographical or nautical and statute miles.

No. 1.—Quebec to Liverpool, *viâ* Straits of Belle-Ile and Malin Head, North of Ireland.

From	To	Sections of Navigation.	Geographical Miles.	Statute Miles.
Quebec	Saguenay	River St. Lawrence.....	106	121
Saguenay.....	Father Point.....	do	53	61
Father Point.....	Lighthouse, west end Anticosti...	do	176	202
West end of Anticosti.	Cape Whittle, Labrador Coast...	Gulf of St. Lawrence	175	201
Cape Whittle.....	Belle-Ile Lighthouse, east entrance	do	200	240
Belle-Ile.....	of Straits.....	do	1,750	2,013
Malin Head,.....	Malin Head, North of Ireland	Atlantic Ocean.....	192	221
	Liverpool.....	do and Irish Sea		
Total from Quebec to Liverpool, <i>viâ</i> Belle-Ile and Malin Head, North of Ireland			2,661	3,060

No. 2.—Head of Lake Superior to Liverpool, *viâ* Straits of Belle-Ile and North of Ireland.

Sections of Navigation.	Geographical Miles.	Statute Miles.
Head of Lake Superior, at Fond-du-Lac, to Quebec.....	1,355	1,553
Quebec to Liverpool, <i>viâ</i> Straits of Belle-Ile and North of Ireland	2,661	3,060
Total from head of Lake Superior to Liverpool, <i>viâ</i> Belle-Ile and Malin Head, North of Ireland.....	4,016	4,613
N.B.—Route <i>viâ</i> Straits of Belle-Ile shorter than <i>viâ</i> Cape Race	158	182

No. 3.—Quebec to Liverpool, *viâ* Cape Race and Malin Head, North of Ireland.

From	To	Sections of Navigation.	Geo- graphical Miles.	Statute Miles.
Quebec	Saguenay	River St. Lawrence	106	122
Saguenay	Father Point.....	do	53	61
Father Point	Métis Point.....	do	22	25
Métis	Cap Ste. Anne-des-Monts...	do	71	82
Cap Ste. Anne-des-Monts...	Cap de-la-Madeleine	do	46	53
Cap de-la-Madeleine	Fame Point	do	29	33
Fame Point	Cap des Rosiers	do	25	29
Cap des Rosiers	Cap St. Pierre de Miquelon	Gulf of St. Lawrence.....	323	394
Cap St. Pierre de Miquelon	Cape Race	Atlantic Ocean	132	152
Cape Race	Malin Head	do	1,800	2,070
Malin Head	Liverpool	do and Irish Sea	192	221
Total from Quebec to Liverpool, <i>viâ</i> Cape Race and Malin Head, North of Ireland			2,819	3,242

No. 4.—Head of Lake Superior to Liverpool, *viâ* Cape Race and North of Ireland

Sections of Navigation.	Geo- graphical Miles.	Statute Miles.
Head of Lake Superior, at Fond-du-Lac, to Quebec	1,355	1,558
Quebec to Liverpool, <i>viâ</i> Cape Race and North of Ireland	2,819	3,242
Total from head of Lake Superior to Liverpool, <i>viâ</i> Cape Race and Malin Head, North of Ireland	4,174	4,800
N.B.—Route <i>viâ</i> Cape Race longer than <i>viâ</i> Straits of Belle-Ile	158	182

No. 5.—Port Arthur (Prince Arthur's Landing), North Shore of Lake Superior, to Liverpool, *viâ* Straits of Belle-Ile and North of Ireland.

Sections of Navigation.	Geo- graphical Miles.	Statute Miles.
Port Arthur, North Shore of Lake Superior, to Quebec	1,250	1,438
Quebec to Liverpool, <i>viâ</i> Straits of Belle-Ile and Malin Head, North of Ireland ...	2,661	3,060
Total from Port Arthur to Liverpool, <i>viâ</i> Belle-Ile and Malin Head, North of Ireland	3,911	4,598
N.B.—Route <i>viâ</i> Cape Race longer than <i>viâ</i> Straits of Belle-Ile.....	158	182

No. 6.—Distance to Liverpool, from Halifax, N.S.; St. John, N.B.; Portland, State of Maine; and Quebec, as measured on Colton's Map of 1861.

Halifax to Liverpool, *viâ* Cape Clear.

From	To	Sections of Navigation.	Distance in Miles.	
			Geographical.	Statute.
Halifax, N.S.....	Cape Clear	Across Atlantic to S.W. end of Ireland ...	2,200	2,530
Cape Clear	Liverpool	Up St. George's Channel.....	330	380
		Total	2,530	2,910

St. John to Liverpool, *viâ* Cape Clear.

St. John, N.B.....	Cape Sable	Across Bay of Fundy to S.W. end of Nova Scotia.....	180	207
Cape Sable	Cape Clear	Across Atlantic to S.W. end of Ireland....	2,310	2,656
Cape Clear	Liverpool	Up St. George's Channel.....	230	380
		Total	2,820	3,243

Portland to Liverpool, *viâ* Cape Sable and Cape Clear.

Portland, State of Main..	Cape Sable	Across Bay of Fundy to S.W. end of Nova Scotia.....	210	242
Cape Sable	Cape Clear	Across Atlantic to S.W. end of Ireland....	2,310	2,656
Cape Clear	Liverpool	Up St. George's Channel	330	380
		Total	2,850	3,278

Quebec to Liverpool, *viâ* Cape Race and North of Ireland.

Quebec.....	Cape Race.....	River and Gulf of St. Lawrence to S.W. point of Newfoundland	827	951
Cape Race.....	Malin Head	Across Atlantic to N. end of Ireland	1,800	2,070
Malin Head.....	Liverpool	Down North Channel	182	221
		Total	2,819	3,242

Quebec to Liverpool, *viâ* Straits of Belle-Ile and Malin Head, North of Ireland. 2,661 3,060

For further details, see preceding tables of distances.—G. F. B.

No. 7.—TABLE of distances from the principal seaports in North America to Galway, Liverpool, Havre, Havana and Rio Janeiro.

		Geographical Miles.
Portland, Me., to	Liverpool.....	2,850
Louisburg, N.S., to	Galway.....	2,100
do	Liverpool.....	2,350
do	Havre	2,450
do	Havana	1,700
do	Rio Janeiro	5,200
Halifax, N.S., to	Galway.....	2,240
do	Liverpool.....	2,500
do	Havre.....	2,600
do	Havana	1,600
do	Rio Janeiro	5,100
St. John, N.B., to	Galway.....	2,450
do	Liverpool.....	2,700
do	Havre	2,800
do	Havana	1,550
do	Rio Janeiro.....	5,050
Quebec to	Louisburg, <i>viâ</i> Cape North.....	742
do	Galway { <i>Via</i> Belle-Ile.....	2,392
	do Cape Race.....	2,700
	<i>Via</i> Belle-Ile (2,651 Colton's	
do	Liverpool { map).....	2,649
	do Cape Race (2,819 do	2,808
do	Havre { <i>Via</i> Belle-Ile.....	2,810
	do Cape Race.....	2,939
do	Havana	2,891
do	Rio Janeiro	5,546
Boston to	Galway.....	2,600
do	Liverpool.....	2,895
do	Havre.....	2,993
do	Havana	1,530
do	Rio Janeiro	4,935
New Nork to	Galway.....	2,700
do	Liverpool.....	3,095
do	Havre	3,228
do	Havana	1,240
do	Rio Janeiro	4,885
Philadelphia to	Liverpool.....	3,275
do	Havre	3,358
do	Havana	1,190
do	Rio Janeiro	4,990
Baltimore to	Liverpool.....	3,450
do	Havre	3,543
do	Havana	1,160
do	Rio Janeiro	5,000
Richmond to	Liverpool.....	3,380
do	Havre.....	3,473
do	Havana	1,090
do	Rio Janeiro	4,930
New Orleans to	Liverpool.....	4,780
do	Havre	4,838
do	Havana	595
do	Rio Janeiro	5,315

No. 8.—CANADIAN and Brazilian Mail Line of Steamships.

From	To	Inter- mediate Mileage.	Total Distances.	Remarks.
Montreal.....	Quebec.....	160	This Company only ran its steamers for a short time, and then suspended service, on account of its inability to comply with the conditions imposed by the French Government to enable it to claim the subsidy promised by that Government.
Quebec.....	Gaspé.....	350	510	
Gaspé.....	Halifax.....	400	910	
Halifax.....	St. Thomas.....	1,584	2,494	
St. Thomas.....	Para.....	1,326	3,820	
Para.....	Maranhao.....	390	4,210	
Maranhao.....	Ceara.....	440	4,650	
Ceara.....	Pernambuco.....	390	5,040	
Pernambuco.....	Bahia.....	430	5,470	
Bahia.....	Rio Janeiro.....	825	6,295	
		6,295		

No. 9.—THE Principal Ocean Steam Routes throughout the world, with Distances in Nautical or Geographical Miles, and the average time in days, from England to the West—Canada, United States, West Indies, South America, Asia, &c.

From	To	Miles from Eng- land.	Days from Eng- land.	Remarks.
Liverpool.....	New York.....	3,046	12	
do.....	Quebec.....	2,634	10	
Southampton.....	St. Thomas (West Indies).....	3,570	14	
do.....	Jamaica do.....	4,270	17	
do.....	Colon or Aspinwall (Central America).....	4,820	19	
do.....	Panama do.....	4,860	20	
do.....	Calao (South America).....	6,250	29	
do.....	Valparaiso do.....	7,650	39	
do.....	Demerara do.....	4,460	20	
do.....	Bahia (Brazil).....	4,408	22	
do.....	Rio Janeiro (Brazil).....	5,140	26	
do.....	Buenos Ayres (La Plata).....	6,178	31	
do.....	San Francisco (by Panama).....	8,190	35	
do.....	Victoria, B.C. do.....	8,950	42	
do.....	Wellington (New Zealand) (by Panama).....	11,400	48	
do.....	Yokohama (Japan) do.....	12,710	56	
do.....	Shanghai (China) do.....	13,745	61	

No. 10.—THE Principal Ocean Steam Routes throughout the World, with Distances in Nautical or Geographical Miles, and the average time in days, from England to the East—India, China, Japan and Australia, by Overland Route.

From	To	Miles from Eng- land.	Days from Eng- land.	Remarks.
Southampton.....	Gibraltar, Europe.....	1,151	5	
do	Malta, Mediterranean.....	2,132	9	
do	Alexandria, Africa.....	2,951	14	
do	Suez do	3,203	15	
do	Aden do	4,511	21	
do	Bombay, India.....	6,175	30	
do	Galle, Ceylon, India.....	6,645	32	
do	Madras do	7,190	36	
do	Calcutta do	7,960	40	
do	Penang do	7,858	38	
do	Singapore do	8,239	40	
do	Hong Kong, China.....	9,676	49	
do	Shanghai do	10,546	54	
do	Pekin do	11,273	59	
do	Nagasaki, Japan.....	11,016	60	
do	Yokohama, Yedo (re-named Tokio), Japan	11,586	65	
do	King George's Sound, Australia.....	9,975	48	
do	Melbourne do	11,315	54	
do	Sydney do	11,875	57	
do	Auckland, New Zealand.....	13,083	64	
do	Otago do	12,423	62	

The above may be shortened 4 days by the Continental Route from London to Marseilles *via* Paris and thence to Alexandria in 9 days instead of 14, as in the above *via* Gibraltar.

No. 11.—THE Principal Ocean Steam Routes throughout the World, with Distances in Nautical or Geographical Miles, and the average time in days. Route to the East by the Cape of Good Hope.

From	To	Miles from Eng- land.	Days from Eng- land.	Remarks.
Southampton.....	Cape of Good Hope	5,850	38	
do	Natal	6,570	44	
do	Mauritius.....	8,162	53	
do	Madras, India.....	13,000	66	
do	Calcutta, India.....	13,770	69	
do	Melbourne, Australia.....	11,720	60	
do	Sydney do	12,280	64	
do	Otago, New Zealand.....	13,040	70	
do	Auckland do	13,540	72	
Melbourne, Australia.....	Liverpool, by Cape Horn.....	13,200	66	

No. 12.—TABLE of Latitudes and Longitudes of Principal Canadian Ports.

	North Latitude.			West Longitude.		
	°	'	"	°	'	"
Halifax, N.S., dockyard observatory.....	44	39	04	63	35	00
Louisburg, N.S., lighthouse.....	45	54	39	59	57	15
Sydney do E. Church tower.....	46	08	45	60	12	50
Pictou do tower of custom house.....	45	40	50	62	42	10
Charlottetown, P.E.I., province building.....	46	14	10	63	07	37
St. John, N.B., time ball on custom house.....	46	16	42	63	03	45
Fredericton, N.B.....	46	03	00	66	38	15
Quebec, Que., citadel.....	46	49	12	71	12	15
Three Rivers, Que.....	46	23	00	72	33	00
Montreal do.....	45	31	00	73	33	00
Ottawa, Ont.....	45	23	00	75	42	00
Kingston, Ont., city clock.....	44	15	15	76	28	30
Toronto do lighthouse on Queen's Wharf.....	43	38	20	79	28	35
Hamilton do.....	43	54	00	79	57	00
Rondeau do lighthouse, south end of east pier.....	42	16	35	81	54	25
Port Colborne, Ont., lighthouse, west pier.....	42	53	00	79	19	30
Goderich do do.....	43	45	10	81	32	30
Collingwood do do on breakwater.....	44	31	00	80	02	10
Port Arthur.....	48	24	00	89	28	00
Winnipeg, Manitoba.....	49	52	00	97	08	00
Victoria, B.C.....	48	30	00	123	25	00

GREAT CIRCLE OR AIR LINE DISTANCES.

No. 13.—GREAT CIRCLE or Air Line Distances in Geographical Miles, as per Map of the Dominion of Canada. Published by order of the Hon. the Minister of the Interior, the 1st November, 1878.

From	To	Miles.
Yokohama, Japan.....	Port Simpson.....	3,865
do.....	Port Moody (Burrard Inlet).....	4,374
do.....	San Francisco.....	4,470
San Francisco.....	New York.....	2,228
do.....	Montreal.....	2,202
Burrard Inlet.....	do.....	1,992
Port Simpson.....	do.....	2,194
St. John, Nfld.....	Cape Clear.....	1,670
do.....	Tory Island.....	1,693
Montreal.....	Quebec (River St. Lawrence).....	145
do.....	Cape Race (via St. Paul).....	1,013
do.....	Belle-Ile.....	892
Belle-Ile.....	Tory Island.....	1,657
Cape Race.....	do.....	1,736
do.....	Cape Clear.....	1,708
Tory Island.....	Liverpool.....	240
Cape Clear.....	do.....	310
Halifax.....	Cape Race.....	470
Portland.....	do.....	767
Boston.....	do.....	808
New York.....	do.....	1,010

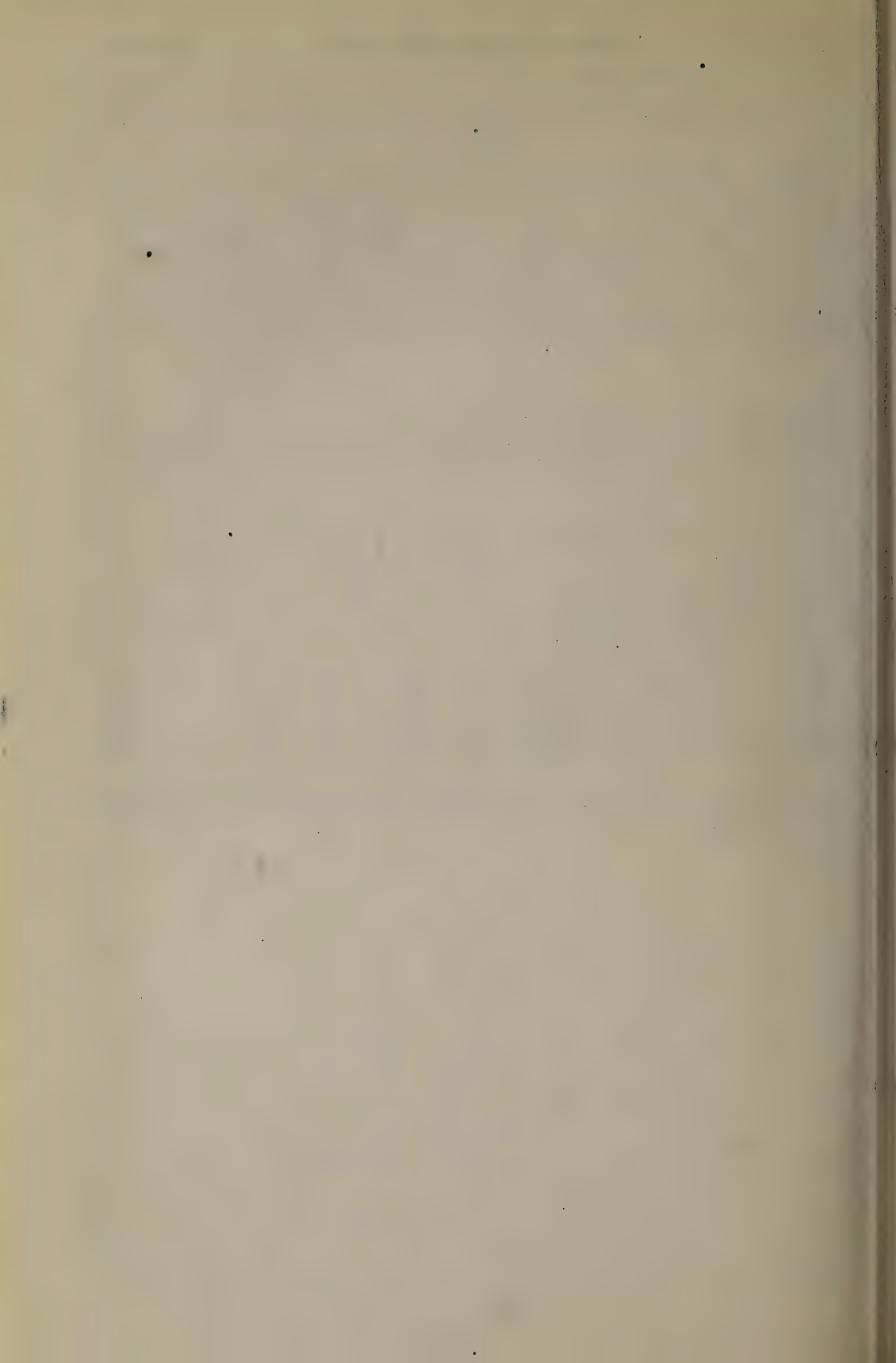
No 14.—DEFINITION OF GEOGRAPHICAL OR NAUTICAL AND STATUTE MILES.

A nautical mile, or a sea mile, is the length of one minute of longitude of the earth at the equator, at the level of the sea, or the $\frac{1}{21600}$ part of the earth's equatorial circumference. By the United States standard, and as used by the Coast Survey, its length is 1.152664 common statute or land miles; 1855.11 metres; 2028.69 yards; or 6086.07 feet; consequently, one degree of longitude at the equator=69.160 land miles; and a land mile=0.86755 of a nautical mile. By British Standard the sea mile is about 4 inches longer than by United States. Sometimes one minute of mean latitude is taken as a nautical mile. A minute of latitude at the equator is about 6,046 feet; and at the Poles about 6,107; the mean of which is 6,076½ feet.

Lengths of a degree of longitude in different latitudes, and at the level of the sea. These lengths are in common land or statute miles of 5,280 feet. Since the figure of the earth has never been *precisely* ascertained, these are but close approximations.

Degree of Latitude.	Miles.	Degree of Latitude.	Miles.	Degree of Latitude.	Miles.	Degree of Latitude.	Miles.	Degree of Latitude.	Miles.	Degree of Latitude.	Miles.
0	69.16	14	67.12	28	61.11	42	51.47	56	38.76	70	23.72
2	69.12	16	66.50	30	59.94	44	49.83	58	36.74	72	21.43
4	68.99	18	65.80	32	58.70	46	48.12	60	34.67	74	19.12
6	68.78	20	65.02	34	57.39	48	46.36	62	32.55	76	16.78
8	68.49	22	64.15	36	56.01	50	44.54	64	30.40	78	14.42
10	68.12	24	63.21	38	54.56	52	42.67	66	28.21	80	13.05
12	67.66	26	62.20	40	53.05	54	40.74	68	25.98	82	9.66

Intermediate ones may be found correctly by simple proportion. See Trautwine -at pages 74 and 75.

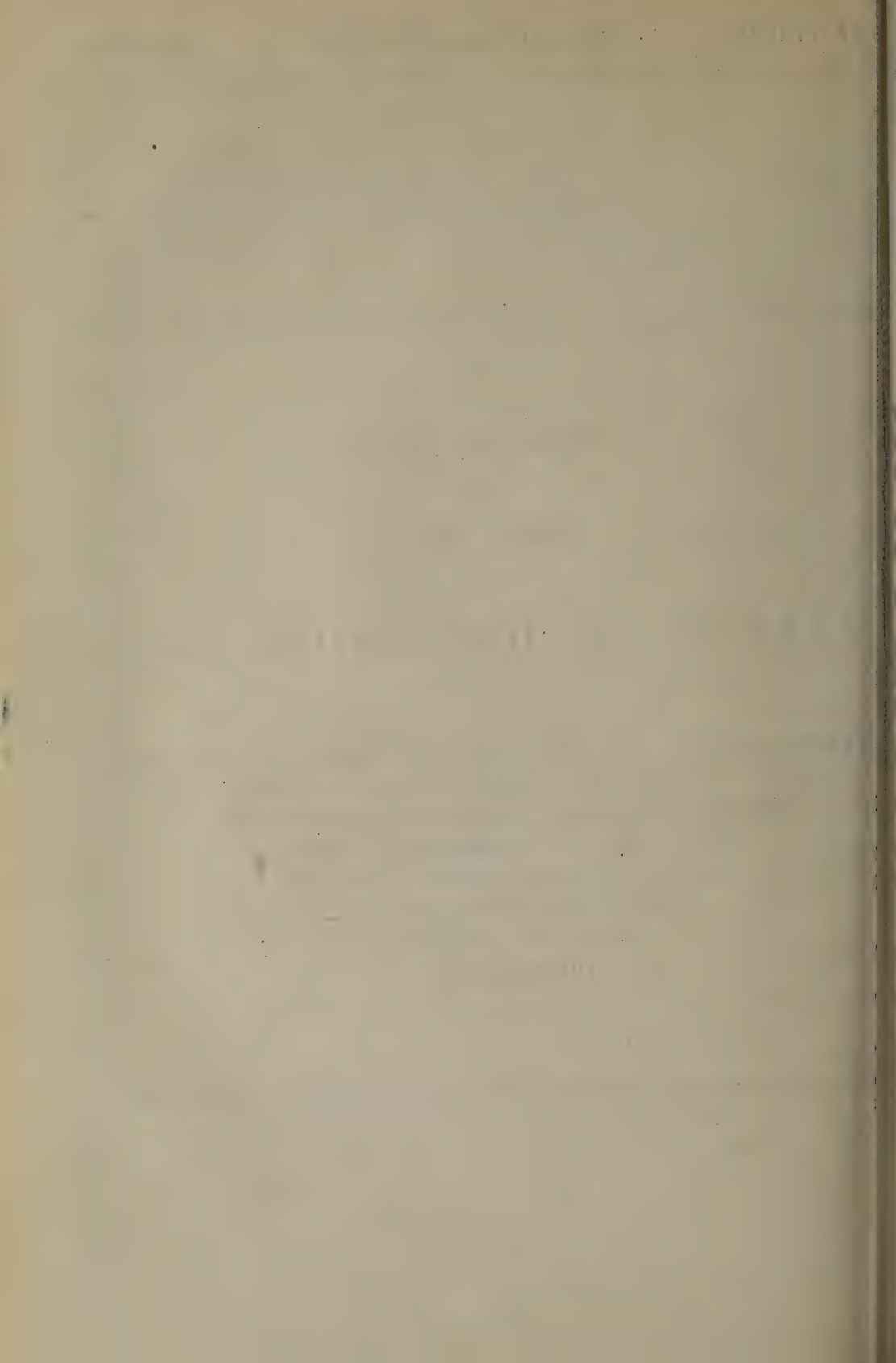


APPENDIX No. 25.

PART III,

TABLES OF DISTANCES, ETC.

INTERPROVINCIAL ROADS AND LAND ROUTES TO THE SEA-
BOARD; GOVERNMENT RAILWAYS AND GOVERNMENT
TELEGRAPH LINES; TOGETHER WITH TABLE
OF THE BRITISH POSSESSIONS THROUGH-
OUT THE WORLD; POPULATION AND
EXTENT OF THE GLOBE, AND
TABLE OF LARGEST EM-
PIRES, ETC., ETC.



APPENDIX No. 25.

PART III.

INDEX OF TABLES OF DISTANCES, &c.

- No. 1. Distances: New road, Quebec to Lake St. John.
- No. 2. Land route: Distances around Lake St. John.
- No. 3. Land Route: Distances from St. Félicien, near west end of Lake St. John, to St. Jérôme, at south-east end of Lake, and thence to Baie des Ha! Ha!
- No. 4. Population of the Counties of Chicoutimi and Saguenay, from Census of 1831.
- No. 5. Table of distances from Quebec to Labrador, along the north shore of the St. Lawrence.
- No. 6. Population of various settlements between Tadousac and Labrador, on the north shore of the St. Lawrence.
- No. 7. Prince Edward Island Railway and connections.
- No. 8. Distances from Quebec to Maritime Provinces *viâ* Intercolonial Railway.
- No. 9. Distances from Quebec to Maritime Provinces *viâ* Témiscouata Road and the Railways in the Valley of the St. John.
- No. 10. Distances from Port Arthur (Prince Arthur's Landing) to Winnipeg, by the Dawson Route.
- No. 11. Distances from Quebec to Port Arthur and Winnipeg *viâ* North Shore and Canadian Pacific Railway.
- No. 12. Manitoba and North-West Territory. Population, property, navigation.
- No. 13. Government Telegraph Lines constructed and projected. Summary showing proportions of Land and Cable Telegraph Lines owned or operated by the Government in the several Provinces.
- No. 14. Area and population of the Globe: Compiled, as far as possible, from the last Official Census of each country.
- No. 15. Table of the British Possessions throughout the world, with their population and area
- No. 16. Table of largest Empires.
- No. 17. Population of the Globe by races.
- No. 18. Population of the Globe by religions.

No. 1.—DISTANCES—New Road—Quebec to Lake St. John.

From	To	Intermediate Mileage.	Total Mileage.
Quebec.....	Boundary Post.....	15	
Boundary Post.....	1st Camp, Lachance (Stoneham)....	8	23
1st Camp, Lachance (Stoneham)....	2nd do Noël.....	11½	34½
2nd do Noël.....	3rd do Lac des Roches.....	9	43½
3rd do Lac des Roches.....	4th do Lake Jacques Cartier.....	14	57½
4th do Lake Jacques Cartier.....	5th do Pikauba.....	13	70½
5th do Pikauba.....	6th do Bédard.....	12	82½
6th do Bédard.....	7th do Rivière Upika.....	12	94½
7th do Rivière Upika.....	8th do do Pika.....	10½	105
8th do do Pika.....	9th do do aux Ecorces.....	11	116
9th do do aux Ecorces.....	10th do Lake Belle Rivière.....	10½	126½
10th do Lake Belle Rivière.....	St. Jérôme, at lower end of Lake St. John, on south side.....	14	140½
St. Jérôme.....	Chicoutimi.....	50	

Mail passes three times a week, winter and summer.

Time : 20 hours, Quebec to Lake Jacques Cartier (per mail).

do 28 hours, Lake Jacques Cartier to St. Jérôme (per mail).

Total 48 hours, Quebec to Lake St. John (per mail).

Total distance 140½ miles, Quebec to Lake St. John.

REMARKS.

MAIL ROAD—QUEBEC TO LAKE ST. JOHN.

Messrs. Blaiklock and Duberger, Provincial Land Surveyors, first examined the country between Quebec and Lake St. John in 1847-48, for a road, but did not find a practical route throughout.

In 1863 Messrs. Vallée and Picard located and opened, at their own expense, the first five miles of the road from Stoneham.

In 1864, with the aid of other citizens from Quebec, they continued to locate and open it as far as Lake Jacques Cartier, for a total distance of about thirty miles.

Mr. Jean Gagnon afterwards, at the request of the Reverend G. Tremblay, curate of Beauport, located the remainder of the line towards St. Jérôme, on the east side of Lake St. John, and stated that the aggregate length of the hills between Lake Jacques Cartier and Lake St. John did not exceed three and a-half miles.

In 1877 the Local Government of the Province of Quebec undertook the construction of the road, which is about 24 feet in width.

The depth of snow in winter varies from 3 to 3½ feet.

RAILWAY—QUEBEC TO LAKE ST. JOHN.

A railway is now in progress of construction since 1879, from Quebec to Lake St. John, running south to Lake St. Joseph, from the crossing of the River Jacques Cartier direct to St. Raymond, thence *via* River Batiscan and Lake Edward to the Township of Roberval, near the River Ouïatchouan, at Lake St. John, through a considerable extent of good agricultural and finely timbered country, and with practicable grades.

The summit intervening between the St. Lawrence and Lake St. John is 1,348 feet, and is at 123 miles from Quebec.

The summit can be surmounted by grades varying from 20 to 80 feet per mile for most of the distance, and from 80 to 132 on the remainder, say for 25 miles.

It is now constructed, and has been in operation during the past year, from Quebec to Lake St. Simon; and is graded for about 40 miles further.

The length of the railway being constructed is as follows, viz.:—

	Miles.
Quebec to Lorette Junction, <i>via</i> North Shore Railway (in operation)	4
Lorette Junction to Lake St. Simon (in operation)	42
St. Simon to Lake St. John (proposed).....	133
Probable total length, when completed.....	<u>179</u>

In the immediate vicinity of the railway there are 6,000,000 of acres of land, out of which 3,000,000 are reported as being well adapted for settlement.

See report of A. L. Light, Engineer-in-Chief of Government Railways, Province of Quebec, dated 9th March, 1881, in answer to an Order of the House of Commons, dated 14th February, 1881.

No. 1.—SUBSIDIES granted to Railway from Quebec to Lake St. John—Probable total length, 179 miles.

Year.	Act.	By whom Granted.	Subsidy.
1882.....	45 Vic., chap. 14...	By Federal Government— St. Raymond to Lake St. John, 120 miles, subsidized at \$3,200 per mile, not exceeding in the whole.....	\$ 384,000
1883.....	46 do 25...	St. Raymond to Lake St. John, 25 miles, subsidized at \$3,200 per mile, not exceeding in the whole.....	80,000
1885.....	48-49 do 59...	From its junction on the North Shore Railway to St. Raymond, upon condition of the Company extending their road to a point 50 miles north of St. Raymond, a subsidy not exceeding \$3,200 per mile, not exceeding in the whole	96,000
		Total by Federal Government.....	560,000
1882.....	45 do 23...	The Provincial Government have granted \$5,000 in money and 5,000 acres of land per mile, on 170 miles, by Act 45 Vic., chap. 23, of 1882, and previous Acts passed.	
		Total by Provincial Government, exclusive of land subsidy.....	850,000
1883.....	.....	The Municipal Council of Quebec, under By-law of 9th Feb., 1883, have granted	350,000
		Total Subsidies, Quebec and Lake St. John Railway.....	<u>1,760,000</u>
1885.....	48-49 Vic., chap. 59	By the Federal Government— For a line of railway from the Grand Piles, on the River St. Maurice, to its junction with the Lake St. John Railway, a distance of about 50 miles, in lieu of the subsidy granted by 47 Vic., chap. 8, for a line of railway from the Grand Piles, on the River St. Maurice, to Lake Edward, a subsidy of	217,600

LAND ROUTE.

No. 2.—DISTANCES around Lake St. John, as measured on the Map published by the Department of Crown Lands, Quebec, in June, 1880.

Names of Places.	Inter- mediate Distances.	Total Distances.	Remarks.
	Statute Miles.	Statute Miles.	
Mouth of Petite Décharge.....	.....	.....	At E. end of Lake St. John.
St. Gédéon-de-Grand Mont.....	4·00	4·00	do by road not completed.
Mouth of Belle-Rivière	3·50	7·50	do by Shore Road.
St. Jérôme	4·50	12·00	At S.E. do do
Mouth of River Metabetchouan.....	6·00	18·00	On S. side of Lake St. John by Shore Road.
Pointe aux Trembles, or St. Louis-de- Chambord	5·00	23·00	do do
Mouth of River Ouiatchouan	4·50	27·50	do do
Notre-Dame-du-Lac, or Roberval	6·00	33·50	On W. do do
Pointe Bleue Mission, Branch Road	See below.		
St. Prime, on S. side River aux Iroquois	8·00	41·50	On S.W. do do
St. Félicien, on S. side of River Cho- mouchouan	See below.		
Outlet of River Chomouchouan.....	1·50	43·00	At S.W. end do
do Mistassini	5·50	48·50	At N.W. end do
do Peribonca	10·50	59·00	Northernmost end of Lake St. John, no road
Mouth of Grande Décharge.....	19·25	78·25	N.E. end, or foot of do
do Petite do	2·50	80·75	At E. end do do
From Notre-Dame-du-Lac, going north, to Pointe Bleue Mission or the Indian Reserve	4·50	.....	On S.W. side of Lake St. John.
From St. Prime to St. Félicien, on the S. side of the River Chomouchouan, following the shortest road to the river	7·50	.....	St. Félicien is seven miles above outlet of River Chomouchouan.
Distance by direct unfinished road	8·50	.....	Eight and one-half miles from St. Prime to St. Félicien by shortest, unfinished road shown on map of 1880.

G. F. B.

No. 3.—DISTANCES from St. Félicien, near upper or west end of Lake St. John, to St. Jérôme, at south-east end of lake, and thence by the shortest post route to the Baie des Ha! Ha! as measured on the Map published by the Department of Crown Lands, Quebec, in June, 1880.

Names of Places.	Inter- mediate Distances.	Total Distances.	Remarks.
	Statute Miles.	Statute Miles.	
St. Félicien	8.50	38.00	On S. side of River Chomouchouan, seven miles above its outlet at S.W. or upper end of Lake St. John.
St. Prime	8.00	29.50	At S.W. end of Lake St. John, Shore Road.
Pointe Bleue Mission—Indian Reserve			Branch road, $4\frac{1}{2}$ miles N. from Notre Dame.
Notre Dame du Lac, or Roberval.....	6.00	21.50	On S.W. side of Lake St. John, Shore Road.
Mouth of River Ouiatchouan.....	4.50	15.50	On S. shore do do
Pointe aux Trembles, or St. Louis de Chambord	5.00	11.00	On S. side do do
Mouth of River Metabetchouan	6.00	6.00	do do do
St. Jérôme (see note below).....	0.00	0.00	At S.E. end do do
Hébertville	9.50	9.50	By the most direct road eastward.
St. Syriac de Kaskouia (see note)	14.50	24.00	By road on N. side of Lake Kinogami.
Grand Brûlé do	14.75	38.75	do do
Chicoutimi do	12.00	50.75	By road on W. side of River Chicoutimi.
St. Alphonse de Bagotville	10.00	60.75	At head or W. end of Baie des Ha! Ha! by shortest road southward.
St. Alexis de la Grande Baie.....	2.50	63.25	At S.W. end of Baie des Ha! Ha! by the shortest road southward.
N.B.			
St. Syriac de Kaskouia to St. Domini- que, on east side of Rivière aux Sables		10.50	Road is along W. side of Rivière aux Sables.
St. Syriac de Kaskouia to Chicoutimi, by road along west side of Rivière aux Sables, except upper portion		20.50	Six and one-quarter miles shorter than road passing by way of Grand Brûlé.
Grand Brûlé to St. Dominique.....		16.50	By road up River Chicoutimi and down Rivière aux Sables.
Head of Baie des Ha! Ha! below Chi- coutimi		24.30	By water route.
Head of Baie des Ha! Ha! above Tad- oussac		60.26	do

REMARK.—The mileage, in the first portion of the above table, is given from St. Jérôme going upward to St. Félicien, and from St. Jérôme going downward to St. Alphonse.—G.F.B.

No. 4.—POPULATION of the Counties of Chicoutimi and Saguenay, from Census of 1881.

Names of Parishes, &c , from Lake St. John downwards.	No. of Families.	No. of Persons.	Total.		Remarks.
			Fami- lies.	Persons.	
COUNTY OF CHICOUTIMI.					
Around Lake St. John.					
Township of Normandin	53	322	.....	.....	W. end of lake.
St. Félicien	114	530	.....	.....	S. side of River Chomouchouan.
St. Prime.....	167	956	.....	.....	S. W. end of lake.
Notre Dame du Lac, or Pointe Bleue, or Roberval	211	1,186	.....	.....	S. W. side of lake.
St. Louis de Chambord or Pointe aux Trembles	182	1,067	.....	.....	W. side of lake.
S. Jérôme	277	1,803	.....	.....	S. E. end of lake.
St. Gédéon de Grand Mont	110	654	.....	.....	E. end of lake.
St. Joseph d'Alma	113	710	.....	.....	On island between Grande and Petite Decharges.
			1,227	7,228	
Between Lake St. John and Chicoutimi.					
Hébertville	421	2,501	.....	.....	1½ miles above Lake Vert.
St. Syriac de Kaskouia or Kinogami.. ..	40	262	.....	.....	N. side Lake Kinogami.
St. Dominique, Rivière aux Sables	220	1,511	.....	.....	E. side Rivière aux Sables.
Grand Brûlé or Laterrière.....	172	1,320	.....	.....	6 miles below outlet of Lake Kinogami.
			853	5,594	
Along the River Saguenay.					
St. François Xavier (Parish of Chicoutimi)....	355	2,687	.....	.....	S. side of River Saguenay.
Ste. Anne	198	1,260	.....	.....	N. do do
Chicoutimi Town.....	327	1,935	.....	.....	S. do do
St. Fulgence.....	135	845	.....	.....	N. do do
St. Alphonse.....	153	1,071	.....	.....	W. end Baie des Ha! Ha!
Bagotville (village only)	88	508	.....	.....	do do
St. Alexis	287	1,749	.....	.....	S. W. do do
Anse St. Jean	89	653	.....	.....	S. side of River Saguenay.
			1,642	10,708	
Grand Totals.....	.....	.....	3,722	23,530	
COUNTY OF SAGUENAY.					
Tadoussac, at mouth of River Saguenay	209	1,542	209	1,542	N. side.
(Population of Village comprised in Parish, 59 families; 341 persons.)					

No. 5.—TABLE of Distances from Quebec to Labrador, along North Shore of the St. Lawrence.

From	To	Intermediate Mileage.	Total Mileage from Quebec.	Remarks.
Quebec	Beauport	3	3	Provincial Highway.
Beauport	Montmorency Falls	4	7	do
Montmorency Falls	Ange Gardien	3	10	do
Ange Gardien	Château Richer	6	16	do
Château Richer	St. Anne de Beaupré	6	22	do
St. Anne de Beaupré	St. Joachim	5	27	do
St. Joachim	St. Tite des Caps	9	36	do
St. Tite des Caps	St. Paul's Bay	24	60	do
St. Paul's Bay	Les Eboulements	9	69	do
Les Eboulements	St. Irénée	9	78	do
St. Irénée	Pointe à Pic	9	87	do
Pointe à Pic	Murray Bay	3	90	do
Murray Bay	Cap à l'Aigle	3	93	do
Cap à l'Aigle	St. Fidèle	6	99	do
St. Fidèle	St. Siméon or Black River	10	109	do
St. Siméon	Port au Persil	8	117	do
Port au Persil	Pointe au Bouleau	9	126	do
Pointe au Bouleau	Anse du Portage	5	131	do
Ferry Anse du Portage (across mouth of River Saguenay) ..	Anse à l'Eau	1	132	do
Anse à l'Eau	Tadoussac	1	133	do
Tadoussac	Les Petites Bergeronnes	9	142	do
Les Petites Bergeronnes	Escoumains	9	151	do
Escoumains	Mille-Vaches	18	169	do
Mille-Vaches	Portneuf	9	178	Beach used—2 portages.
Portneuf	Sault au Cochon	7	185	do
Sault au Cochon	Îlots de Jérémie	18	203	Track req. through forest.
Îlots de Jérémie	Betsiamits (Betsiamits)	7 $\frac{1}{2}$	210 $\frac{1}{2}$	Beach used.
Betsiamits (Betsiamits)	Pointe aux Outardes	12	222 $\frac{1}{2}$	do
Pointe aux Outardes	Manicouagan	15	237 $\frac{1}{2}$	Track req. through forest.
Manicouagan	River Godbout	27	264 $\frac{1}{2}$	do do
River Godbout	Pointe des Monts	12	276 $\frac{1}{2}$	do do
Pointe des Monts	Trinité	7	283 $\frac{1}{2}$	Beach used.
Trinité	Îlots à Caribou	7 $\frac{1}{2}$	291	do
Îlots à Caribou	Baie des Kani	22	313	do
Baie des Kani	Jambon	8	321	Track req. through forest.
Jambon	River Ste. Marguerite	12	333	do do
River Ste. Marguerite	Sept Îles	12	345	do do
Sept Îles	River Moisy	19	364	Beach used.
River Moisy	River à la Truite	8	372	do
River à la Truite	Cormoran	8	380	do
Cormoran	Pigou	7	387	do
Pigou	River au Bouleau	7	394	Fine beach—short portage.
River au Bouleau	River Matémek	7	401	do do
River Matémek	River Chaloupe	8	409	do do
River Chaloupe	River Sheldrake	7	416	do do
River Sheldrake	River Tonnerre	7	423	do do
River Tonnerre	Portage du Loup Marin	8	431	do do
Portage du Loup Marin	River Magpie	7	438	do do
River Magpie	River St. Jean	7	445	do do
River St. Jean	Longue Pointe	9	454	do do
Longue Pointe	Poste de Mingan	5	459	do do
Poste de Mingan	Pointe aux Esquimaux	18	477	do do
Pointe aux Esquimaux	Nataskouan	64	541	do do
Nataskouan	Tahikaska	18	559	
Tahikaska	Mécatina	75	634	
Mécatina	Bonne Espérance	99	733	
Bonne Espérance	Blanc Sablon	24	757	Boundary of Labrador, Newfoundland & Canada.

No. 6.—POPULATION of various Settlements between Tadoussac and Labrador, on the North Shore of the St. Lawrence.

Names of Places.	Census Returns.		Church Returns.		
	No. of Persons.	No. of Persons.	No. of Families.	No. of Families.	No. of Persons.
	1871.	1881.	1884.	1881.	1881.
Tadoussac	765	1,542	Not obtained	131	1,070
Escoumains	1,023	520	do	163	1,133
Mille-Vaches		1,115	do		
Portneuf	1,790		do	109	1,037
Sault au Cochon			2	45	290
Ilots de Jérémie			1		
*Betsiamits (Betsiamits or Bersimis)	552		110	176	687
Pointe aux Outardes			5		
Manicouagan	86	120	3	13	100
*River Godbout			17	13	59
Pointe des Mouts	106	243	3		
Trinité			3		
Ile aux Oeufs					
Pointe aux Anglais				24	127
Rivière Pentecôte					
Caillles Rouges					
Ilots à Caribou				9	65
*Rivière Ste. Marguerite			2		
*Sept Iles	191		35	83	385
Rivière Moisy	336	241	18	22	114
Rivière à la Truite			2		
Cormoran			2		
Pigou			6		
Rivière au Bouleau			2		
River Matémek			2		
River Chaloupe			2		
River Sheldrake			6		
Petit Manitou				24	133
Rivière au Tonnerre			5	16	90
Rivière du Loup Marin			3		
River Magpie			6	42	240
Rivière St. Jean			13	27	173
*Longue Pointe			14		
*Mingan	560		110	75	310
Pointe aux Esquimaux	862	1,775	75	181	967
Betchouan, &c.				35	177
Nataskouan	358	480	44	53	286
Nampissipi					
Harre à la Croix				22	90
Mécatina	280	410	Not obtained		
Tête à la Baleine				48	254
Baie des Moutons					
Tabatière					
Anse des Dunes				89	425
St. Augustin					
Blanc Sablon					
Bonne Espérance	266	341	Not obtained		
*Romaine				68	245
	7,175	6,787	491	1,468	8,457

* See remarks on next page.

In places of preceding table marked thus (*) the population is divided as follows:—

Name of Place.	Whites.		Indians.	
	No. of Families.	No. of Persons.	No. of Families.	No. of Persons.
Betsiamits.....	56	207	120	480
River Godbout.....	7	45	6	14
Rivière Ste. Marguerite and Sept Iles.....	18	110	65	275
Longue Pointe and Mingan.....	18	96	57	214
Romaine.....			68	245
	99	458	316	1,228

Population of settlements given in Census of 1871 and Census of 1881 includes intermediate places.

The returns for 1864 were obtained from Rev. C. Arnaud, Oblat Missionary, and those for 1881 were furnished by the kindness of His Lordship the Bishop of Rimouski for places to Sault au Cochon to Romaine; and by Rev. Father Laberge, Secretary to His Lordship the Bishop of Chicoutimi, for Tadoussac, Escoumains, Mille-Vaches and Portneuf.

No. 7.—DISTANCES—Prince Edward Island Railway and Connections.

From	To	Intermediate Mileage.	Total Mileage from Charlottetown.	Remarks.
Charlottetown.....	County Line.....	32	.....	<i>Via P. E. I. Railway.</i>
County Line.....	Summerside.....	17	49	do
Summerside.....	Alberton.....	53	102	do
Alberton.....	Tignish.....	14	116	do
Charlottetown.....	Mount Stewart.....	22	.....
Mount Stewart.....	Georgetown.....	24	46	do
do.....	Souris.....	39	61	do

WINTER ROUTE *via* THE CAPES.

Charlottetown.....	County Line.....	32	.....	<i>Via P. E. I. Railway.</i>
County Line.....	Cape Traverse.....	16	48	Stage.
Cape Traverse.....	Cape Jourimain.....	12	60	Ice boats.
Cape Jourimain.....	Au Lac.....	45	105	Stage.
Au Lac.....	St. John, N.B.....	131	236	Intercolonial Railway.
do.....	Halifax, N.S.....	145	250	do
do.....	Quebec, P. Q.....	542	647	do

WINTER ROUTE *via* GEORGETOWN AND PICTOU.

Charlottetown.....	Georgetown.....	46	.....	P. E. I. Railway.
Georgetown.....	Pictou.....	45	91	Steamer "Northern Light."
Pictou.....	Truro.....	52	143	Intercolonial Ry. (Pictou Branch)
Truro.....	Halifax, N.S.....	62	205	do do
do.....	St. John, N.B.....	214	357	Intercolonial Railway.
do.....	Quebec, P. Q.....	625	768	do

No. 8.—DISTANCES from Quebec to Maritime Provinces *viâ* Intercolonial Railway.

	Intermediate distances.	Distances from Quebec.	
	Miles.	Miles.	
Quebec to Moncton, N.B.....	500	.....	Intercolonial Railway.
Moncton to Truro, N.S.....	125	625	do
Truro to Halifax, N.S.....	62	687	do
Quebec to Moncton, N.B.....	500	.....	do
Quebec to St. John, N.B.....	89	589	do
Quebec to Moncton, N.B.....	500	.....	do
Moncton to Pointe du Chêne, N.B.....	18	518	do
Pointe du Chêne to Summerside, P.E.I.....	35	553	P. E. I. Navigation Co. Steamers.
Summerside to Charlottetown, P.E.I.....	49	602	do Railway.
Quebec to Truro, N.S.....	625	.....	Intercolonial Railway.
Truro to New Glasgow, N.S.....	43	668	Pictou Branch do
New Glasgow to Pictou, N.S.....	9	677	do do
Pictou, N.S., to Charlottetown, P.E.I.....	50	727	P. E. I. Navigation Co. Steamers.
Quebec to New Glasgow, N.S.....	668	.....	Intercolonial Ry. and Pictou Branch.
New Glasgow to Straits of Canso.....	80	748	Eastern Counties Railway.
Straits of Canso to Sydney, C.B.....	120	868	Steamers <i>viâ</i> St. Peter's Canal.

No. 9.—DISTANCES from Quebec to Maritime Provinces *via* Témiscouata Road and the Railways in the Valley of the River St. John.

	Intermediate distances.	Distances from Quebec.	
	Miles.	Miles.	
Quebec to Rivière-du-Loup	126	.....	Intercolonial Railway.
Rivière-du-Loup to Edmundston, N.B.	80	206	Témiscouata Road.
Edmundston to Fredericton	160	366	New Brunswick Railway.
Fredericton to Fredericton Junction	22	388	Fredericton Railway.
Fredericton Junction to St. John	46	434	St. John and Maine Railway.
St. John to Halifax, N.S.	276	710	Intercolonial Railway.
Quebec to Fredericton Junction	388	.....	As above.
Fredericton Junction to McAdam Junction	40	428	St. John and Maine Railway.
McAdam Junction to St. Andrew's	43	471	New Brunswick and Canada Railway.
McAdam Junction to St. Stephen	35	463	New Brunswick and Canada Railway.
Quebec to Edmundston	206	.....	As above.
Edmundston to Woodstock, N.B.	113	319	New Brunswick Railway.
Woodstock to McAdam Junction	51	370	do and Canada Railway.
McAdam Junction to St. John	85	455	St. John and Maine Railway.
McAdam Junction to St. Andrew's	43	413	New Brunswick and Canada Railway.
McAdam Junction to St. Stephen	35	405	New Brunswick and Canada Railway.
	Intermediate distances.	Distances from Quebec.	
	Miles.	Miles.	
St. John, N.B., to Digby, N.S.	42	.....	} Steamer across Bay of Fundy.
Digby to Annapolis	18	60	
Annapolis to Halifax.	130	190	
Digby to Yarmouth	67	127	Western Counties Railway.

N.B.—The above table, published in the preceding reports, has been modified in accordance with the most recent railway tables.

No. 10.—DISTANCES from Port Arthur (Prince Arthur's Landing, Lake Superior) to Fort Garry (Winnipeg) by the Dawson Route.

	Statute Miles.	
	Inter-mediate.	Total.
Port Arthur to Lake Shebandowan.....	45	45
Lake Shebandowan to North-West Angle.....	312	357
North-West Angle to Fort Garry (Winnipeg).....	95	452

The steamboat voyage from Collingwood to Port Arthur is 532 miles.

The Dawson route has been superseded by the portion of the Canadian Pacific Railway now completed and in operation between Port Arthur (Thunder Bay, Lake Superior) and Winnipeg, *via* Rat Portage and Selkirk, a distance of 429 miles. See next table.

No. 11.—DISTANCES from Quebec to Port Arthur and Winnipeg, *via* North Shore Railway and Canadian Pacific Railway, to Ottawa; thence *via* Perth, Toronto and Orangeville, by Subsidiary Line of Canadian Pacific Railway, to Owen Sound; thence by C.P.R. Steamers across Lakes Huron and Superior to Port Arthur; thence by main line of Canadian Pacific Railway to Winnipeg.

SUMMER ROUTE BY RAILWAYS AND LAKE STEAMERS, 1884, 1885.

From	To	Statute Miles.	
		Inter-mediate.	Total.
Quebec.....	Montreal (St. Martin's Junction), North Shore Railway.....	159	159
	Ottawa main line Canadian Pacific R'y ...	108	267
	Perth, subsidiary line C.P.R.....	59	326
	Toronto Junction, $4\frac{1}{2}$ miles from Toronto.	199	525
	Orangeville.....	43 $\frac{1}{2}$	568 $\frac{1}{2}$
	Owen Sound.....	73 $\frac{1}{2}$	642
	Sault Ste. Marie Canal—Steamer, Lake Huron.....	250	892
	Port Arthur—Steamer, Lake Superior.....	280	1,172
	Winnipeg, main line Canadian Pacific R'y	429	1,601

N.B.—The route from Quebec, by North Shore Railway, to Montreal, is 171 miles; thence by Grand Trunk Railway to Toronto, 333 miles; thence to Toronto Junction $4\frac{1}{2}$, or 508 $\frac{1}{2}$ miles in all from Quebec.

For distances by above route to Port Moody and Yokohama from Liverpool, see Part IV, Table No. 2.

For comparative tables of distances from Liverpool, England, on the Atlantic, to Yokohama Japan, on the Pacific, by the shortest ocean routes, and by the shortest trunk lines of railway in Canada and the United States, in North America, see Part IV.

For cost of construction of Canadian Pacific and North Shore Railway, for subsidies thereto and to other railways, and for other details, see Part IV.

No. 12.—MANITOBA and NORTH-WEST Territory—Population—Property—Navigation.

Localities.	1884.	
	Population.	Value of Assessable Property.
		\$
Emerson, frontier of United States, 65 miles from Winnipeg, branch of Canadian Pacific Railway.....	1,500	706,725
Winnipeg.....	25,000	27,432,900
Portage la Prairie.....	2,551	2,300,000
Brandon.....	2,082	3,014,308
Regina.....	613	500,000
Calgary.....	300	500,000

Rivers.	Navigable Length.	Number of Steamboats.
	Miles.	
Red River.....	100	10
River Assiniboine.....	700	2
Lake Winnipeg.....	350	9
River Saskatchewan.....	1,000	5
Athabasca and Peace Rivers.....	1,000	1

No. 13.—GOVERNMENT TELEGRAPH LINES.

CONSTRUCTED.

Names of Stations.		Lengths—Distances in Miles.			Established
From	To	Inter-mediate	Pro-gressive	Complete Lines.	
		Miles.	Miles.	Miles.	
<i>Newfoundland.</i>					
Port aux Basques.....	Cape Ray Lighthouse.....	14	.....	14	April 1, 188
<i>Cape Breton Section.</i>					
Meat Cove	Aspee Bay.....	10½	.....	.....	Nov. 7, 1890 Aug. 1, 1887
Aspee Bay.....	O'Neil's Harbour (House half way).....	15	25½	.....	April 1, 1886
O'Neil's Harbour.....	ngonish North Bay.....	9	34½	.....
Ingonish North Bay.....	do Harbour.....	10½	45	.....
Ingonish Harbour.....	McLennan's.....	23	68	.....	Jan. 1, 1886 July 19, 1886
McLennan's.....	Ste. Anne's (South Bay).....	19	87	.....
Ste. Anne's.....	Baddeck (Loop line).....	13	100	.....
Baddeck.....	Englishtown.....	6	106	.....	Nov. 7, 1886
Englishtown.....	Kelly's Cove.....	2	108	.....
Kelly's Cove.....	Big Bras d'Or (of this ½ mile cable).....	6	114	.....
Big Bras d'Or.....	North Sydney.....	12½	126½	.....	Nov. 7, 1886
	Land lines.....	126	.....	.....
	Cable.....	0½	.....	126½	
<i>Magdalen Islands.</i>					
Amherst.....	Amherst Lighthouse.....	9	.....	.....	June 10, 1886
do Lighthouse.....	Etang du Nord Village.....	15	24	.....	Dec. 1, 1886
Etang du Nord Village.....	do Lighthouse.....	1	25	.....	do
do Lighthouse...	House Harbour (of this 100 mile cable).....	8	33	.....	do
House Harbour.....	Wolfe Island.....	28½	61½	.....	Sept. 25, 1886
Wolfe Island.....	Grosse Ile.....	11	72½	.....	Aug. 17, 1886
Grosse Ile.....	Grand Entry.....	11	83½	.....	Feb. 18, 1886
do.....	Bird Rock (all cable).....	18½	101½	.....	Aug. 20, 1886
do.....	Meat Cove do.....	5½	156½	.....	Nov. 7, 1886
	Land lines.....	83½	.....	.....
	Cable.....	73½	.....	156½	
<i>Low Point, C.B., Nova Scotia</i>					
Lingan.....	Low Point.....	5	.....	5	Aug. 1, 1886
<i>Nova Scotia Section.</i>					
Dartmouth.....	.....	0	.....	.....
Musquodoboit.....	.....	28½	28½	.....
Ship Harbour via Clam Cove.....	.....	23½	52	.....
Tangier.....	.....	20½	72½	.....
Sheet Harbour.....	.....	18	90½	.....
Beaver do.....	.....	10	100½	.....
Liscomb.....	.....	36	136½	.....
Sherbrooke.....	.....	11½	148	.....
Isaac's Harbour.....	.....	36	184	.....
Manthorn's Cove.....	.....	3	187	.....
Torbay.....	.....	10	197	.....
Whitehaven Loop.....	.....	11	208	.....
				208	

No. 13.—GOVERNMENT TELEGRAPH LINES—*Continued.*CONSTRUCTED—*Continued.*

Names of Stations.		Lengths—Distances in Miles.			Established.
From	To	Inter- mediate.	Pro- gressive.	Complete lines.	
<i>Escuminac.</i>					
Chatham.....	Black Brook	5½	Feb. 1, 1885.
Black Brook	Bay du Vin.....	15	20½	.....
Bay du Vin	Escuminac	9½	30	.....
Escuminac	Point Escuminac Light- house	12	42	42	
<i>Quarantine.</i>					
Quebec	L'Ange Gardien	13	Dec. 1, 1884.
L'Ange Gardien	St. Pierre (Cable ¾ miles) ..	4	17	.....
St. Petronille	St. Petronille.....	4½	21½	.....
St. Laurent	St. Laurent.....	6½	28	.....
St. Jean	St. Jean	7	35	March 1, 1885.
St. François	St. François	6¾	41¾	.....
Grosse Ile Wharf	Grosse ile Wharf (including 5½ miles cable).....	9	50¾	.....
	Hospital	1½	52	June, 1885.
				52	
	Miles.				
	Land lines	46			
	Cables	6			
	Total.....	52			

No. 13.—GOVERNMENT TELEGRAPH LINES—*Continued.*CONSTRUCTED—*Continued.*

Names of Stations.		Lengths—Distances in Miles.			Established.
From	To	Inter-mediate.	Pro-gressive	Complete lines.	
BAY OF FUNDY.					
<i>Campo Bello Section, N. B.</i>					
East Port, Maine	Welchpool (cable $1\frac{7}{8}$ miles).	$2\frac{3}{4}$	.....	.....	May 1, 1881.
Welchpool	Cable Hut (Liberty Cove)...	$7\frac{1}{2}$	.....	$9\frac{1}{8}$	
<i>Grand Manan Section.</i>					
Liberty Cove	Cable Hut (Long Eddy) cable	$7\frac{1}{2}$	.....	.....	Nov. 18, 1880.
Long Eddy	Flagg's Cove	3	$10\frac{1}{2}$	.....
Flagg's Cove	Woodward's Cove	6	$16\frac{1}{2}$	.....	Nov. 26, 1880.
Woodward's Cove	Grand Harbour	2	$18\frac{1}{2}$	.....	Jan. 18, 1881.
Grand Harbour	Seal Cove	$4\frac{1}{2}$	$22\frac{1}{2}$	.....	Nov. 1, 1882.
Seal Cove	Southern Head	$5\frac{1}{2}$	$28\frac{1}{4}$	.....	Jan. 18, 1881.
				$28\frac{1}{4}$	
Land		29			
Cables		$9\frac{1}{2}$			
<i>Anticosti.</i>		$38\frac{1}{2}$			
Gaspé Basin	L'Anse à Fougère	28	.....	.....	Oct. 16, 1881.
L'Anse à Fougère	South-West Point (all cable) across south channel of St. Lawrence	$44\frac{1}{2}$	$72\frac{1}{4}$	$72\frac{1}{4}$	do
Fox Bay	Heath Point	23	.....	.....	Aug. 11, 1881.
Heath Point	South Point	$32\frac{1}{2}$	$55\frac{1}{2}$	.....	July 20, 1881.
South Point	Shallop Creek	$17\frac{1}{2}$	73	.....	July 27, 1881.
Shallop Creek	Salt Lake	$52\frac{1}{2}$	$125\frac{1}{2}$	.....	July 7, 1881.
Salt Lake	South-West Point	15	$140\frac{1}{2}$	.....	Oct. 19, 1881.
South-West Point	Jupiter River	7	$147\frac{1}{2}$	.....	Oct. 18, 1880.
Jupiter River	Otter River	$17\frac{1}{2}$	165	.....
Otter River	Becsaï River	22	187	.....	Oct. 8, 1881.
Becsaï River	Cape Eagle (Ellis Bay)	10	197	.....
Cape Eagle	West Point	14	211	.....	Aug. 1, 1881.
West Point	English Bay	3	214	.....	July 1, 1882.
				214	
Land Line		242			
Cable		$44\frac{1}{2}$			
					$286\frac{1}{4}$
<i>South Shore St. Lawrence.</i>					
Grand Métis	Gaspé Basin	206	.....	.....
(Subsidized by Government —Great North-Western Telegraph Co.)					

No. 13.—GOVERNMENT TELEGRAPH LINES—*Continued.*

CONSTRUCTED AND PROJECTED.

Names of Stations.		Lengths—Distances in Statute Miles.			Established.
From	To	Inter-mediate.	Pro-gressive.	Complete Lines.	
North Shore, St. Lawrence.					
Murray Bay.....	St. Fidèle.....	10	10	} July 23, 1881.	
St. Fidèle.....	St. Simon.....	11	21		
St. Siméon.....	Anse du Portage.....	23	44		
Anse du Portage.....	Tadoussac (cable 1½ miles across mouth of Saguenay)				
Tadoussac.....	Bergeronnes.....	2	46	} Nov. 7, 1881.	
Bergeronnes.....	Escoumains.....	15	61		
Escoumains.....	Sault au Mouton.....	12	73		
Sault au Mouton.....	Portneuf village.....	16	89		
Portneuf village.....	do lighthouse.....	11½	100½	} October, 1882.	
do lighthouse.....	Sault au Cochon.....	9	109½		
Sault au Cochon.....	Betsiamits (Bersimis).....	7	116½		
Betsiamits (Bersimis).....	Pointe aux Outardes (cable)	31	147½		
Pointe aux Outardes.....	Manicouagan.....	12	159½	} August, 1883.	
Manicouagan.....	River Godbout (cable).....	18	177½		
River Godbout.....	Pointe des Monts.....	26	203½		
Pointe des Monts.....	Trinity Bay.....	18½	222		
Trinity Bay.....	Pentecost.....	7½	229½	} Dec., 1883.	
Pentecost.....	Sept Îles.....	31	260½		
Sept Îles.....	River Moisy.....	29½	290		
		19	309		
Total in operation ..		309			
Land Lines..... 269½					
Cables..... 39½					
				309	Feb. 4, 1885.
River Moisy.....	River Chaloupe.....	45	}		Projected.
River Chaloupe.....	Poste de Mingan.....	50			
Poste de Mingan.....	Pointe aux Esquimaux.....	18			
Pointe aux Esquimaux.....	Nataskouan.....	64			
Nataskouan.....	Tehikaska.....	18			
Tehikaska.....	Wapitagu.....	42			
Wapitagu.....	Mécatina.....	33			
Mécatina.....	Shecatina.....	50			
Shecatina.....	Bonne Espérance.....	49			
Bonne Espérance.....	Blanc Sablon.....	24			
Total distances.....		702			

No. 13.—GOVERNMENT TELEGRAPH LINES—*Continued.*

CONSTRUCTED.

Names of Stations.		Lengths—Distances in Statute Miles.			Established.
From	To	Inter- mediate.	Pro- gressive	Complete Lines.	
<i>Chicoutimi.</i>					
Baie St. Paul.....	St. Urbain.....	9			} 1st Sept., 1881
St. Urbain.....	Petit Lac Ha! Ha!.....	37	46		
Petit Lac Ha! Ha!.....	St. Alexis.....	31½	77½		
St. Alexis.....	St. Alphonse de Bagotville.....	3	80½		
St. Alphonse de Bagotville	Chicoutimi.....	11½	92		
	Land line.....			92	
<i>North-West Lines.</i>					
Qu'Appelle Ry. Station...	Fort Qu'Appelle.....	17			Jan., 1883.
Fort Qu'Appelle.....	Touchwood.....	46	63		Sept., 1883.
Touchwood.....	Humbolt.....	78	141		1878-9.
Humbolt.....	Saskatchewan.....	55	196		Nov., 1883.
Saskatchewan.....	Battleford.....	85	281		1878-9.
Saskatchewan (Clark's Crossing).....	Prince Albert, Branch Line...			83	Dec., 1883.
Battleford.....	Meridian.....	84	365		
Meridian.....	Victoria Trail.....	80	445		
Victoria Trail.....	Hay Lake.....	56	501		
Hay Lake.....	Fort Edmonton.....	36	537		1878-9.
				537	
<i>Branches.</i>					
Clark's Crossing.....	Saskatoon.....			14	
Edmonton.....	St. Albert.....			9	May, 1885.
<i>Sections South of Railway.</i>					
Galt Junction.....	Lethbridge.....	107			
Lethbridge.....	McLeod.....	28½	135½		
McLeod.....	Fort McLeod.....	½	136	136	May, 1885.
Moose Jaw.....	Wood Mountain.....			90½	June, 1885.
	Total, North-West Lines...			869½	

No. 13.—GOVERNMENT TELEGRAPH LINES—*Continued.*

SYSTEM of Telegraph Lines and Cables now maintained by the Dominion Government,
676½ miles, or 79½ miles less than by the Route of 1880.

CONSTRUCTED.

Localities.		Constructed	Miles.
From	To		
<i>British Columbia.</i>			
Vancouver Island Land Lines—			
Victoria.....	Departure Bay.....	1878	74½
Nanaimo.....	Valdes.....	1881	15
Victoria.....	Clover Point.....	1884	2½
Cable connection with Washington Territory—			
Clover Point.....	Dungeness.....	1884	17
Straits of Georgia Cables—			
Saanich Arm Crossing.....	.....	1878 & 1881	2
Gabriola Island do .....	.....	1881	1
Valdes Island	Point Gray.....	1881	20
Mainland British Columbia Land Lines—			
Point Gray.....	Granville.....	1881	15
Granville.....	New Westminster.....	1881	11½
New Westminster.....	Matsqui (including cables)	1864 & 1881	35½
Matsqui.....	Cache Creek do	1864 & 1878	181
Cache Creek.....	Barkerville, Cariboo.....	1865 & 1878	272½
do	Kamloops.....	1878	48
Fraser River Crossings (main lines), 2 cables			
½ mile each .....	.....	1881	½
Branch Lines—			
New Westminster to Ladner's Landing.....		.....	18
(Including ½ mile cable crossing Fraser River)		.....	7½
New Westminster to Port Moody.....		.....	7½
Total miles.....		.....	721½

Plus 44 miles of an additional wire between New Westminster and the United States boundary line, 8 miles from Matsqui.

Land line.....	680½
Cables	41
	721½

No. 13.—SUMMARY showing proportions of Land and Cable Telegraph Lines, owned, subsidized or operated by Government in the several Provinces.

	Distances in Miles.				Grand Total.
	Intermediate.		Progressive.		
	Land.	Cables.	Land.	Cables.	
Newfoundland—Subsidized line— Port aux Basques to Cape Ray	14	.....	14	.....	14
Nova Scotia— Sydney to Meat Cove.....	126	$\frac{1}{2}$	.....	.....	.....
Dartmouth to Torbay (subsidized).....	208	.....	334	$\frac{1}{2}$	.....
Low Point to Lingan	6	.....	339	$\frac{1}{2}$	.....
Barrington to Cape Sable Island	16	$1\frac{1}{2}$	355	$2\frac{1}{2}$	357 $\frac{1}{2}$
New Brunswick— Bay of Fundy lines	29	$9\frac{1}{2}$	29	$9\frac{1}{2}$	.....
Chatham to Escuminac.....	42	.....	71	.....	80 $\frac{1}{2}$
Quebec— South Shore (subsidized) from Grand Métis to Gaspé Basin.....	206	.....	.....	.....	.....
Great North-Western Telegraph Company's Offices....		.....	.....	.....	.....
Magdalen Islands.....	83 $\frac{3}{8}$	73 $\frac{3}{8}$	289 $\frac{3}{8}$	.....	.....
Anticosti Island.....	242	44 $\frac{1}{2}$	531 $\frac{3}{8}$	117 $\frac{3}{8}$	.....
North Shore of St. Lawrence.....	269 $\frac{3}{8}$	39 $\frac{1}{2}$	801 $\frac{3}{8}$	156 $\frac{3}{8}$	.....
Chicoutimi.....	92	.....	893 $\frac{3}{8}$	156 $\frac{3}{8}$	.....
Quarantine, Grosse Ile	46	6	939 $\frac{3}{8}$	162 $\frac{3}{8}$	1,102 $\frac{3}{8}$
North-West Territory.....	869 $\frac{1}{2}$	.....	.....	.....	869 $\frac{1}{2}$
British Columbia	680 $\frac{1}{2}$	41	.....	.....	721 $\frac{1}{2}$
Totals.....	2,929 $\frac{1}{8}$	215 $\frac{1}{4}$	.....	.....	3,144 $\frac{3}{8}$

No. 14.—AREA and Population of the Globe. Compiled, as far as possible, from the last Official Census of each country; and where no Census has been made the figures are taken from the most reliable estimates.

Continent.	Country.	Years of Census.	Area, English Square Miles.	Population.
Europe.....	Austro-Hungary.....	1880	240,940	37,741,434
	Belgium.....	1880	11,373	5,519,844
	British Isles and Gibraltar, Malta, &c.....	1881	121,237	35,422,407
	Bulgaria.....	.....	27,538	2,000,000
	Denmark and Iceland.....	1880	55,260	2,096,410
	France.....	1881	204,096	37,672,049
	German Empire.....	1880	208,744	45,194,177
	Greece.....	1879	19,353	1,979,775
	Holland.....	1880	13,679	4,270,098
	Italy.....	1881	114,408	28,459,451
	Montenegro.....	.....	1,710	245,380
	Portugal.....	1879	35,812	4,745,121
	Roumania.....	.....	49,262	5,376,000
	Russia, in Europe.....	1882	2,074,686	84,851,886
	Servia.....	1879	18,767	1,670,000
	Spain.....	1879	195,775	16,623,389
	Sweden and Norway.....	1881	293,849	6,391,398
	Switzerland.....	1880	15,991	2,846,102
	Turkey, in Europe.....	.....	80,000	5,275,000
	Total.....	.....	3,782,480	328,379,923
Asia.....	Afghanistan.....	.....	278,600	2,500,000
	Arabia (Ind.).....	.....	1,500,000	3,265,000
	Beluchistan.....	.....	140,000	1,000,000
	British India.....	1881	1,473,687	253,382,186
	Chinese Empire.....	.....	4,539,750	434,580,000
	East India Islands.....	.....	786,500	34,500,000
	Farther India.....	.....	873,151	36,504,250
	Independent Turkistan.....	.....	194,345	3,000,000
	Japan.....	.....	147,629	35,925,313
	Persia.....	.....	636,000	5,000,000
	Portuguese Settlements.....	.....	7,134	877,500
	Russia, in Asia.....	1882	6,250,707	15,186,466
	Turkey do.....	.....	729,981	17,536,465
	Total.....	.....	17,557,484	843,257,170
Africa.....	Abyssinia.....	.....	158,000	3,000,000
	Algeria.....	.....	123,000	2,870,000
	British South Africa.....	.....	546,230	1,890,500
	Central Africa, including Somah & Gallas.....	.....	4,000,000	50,000,000
	Egypt.....	.....	870,000	17,400,000
	Gold Coast, Sierra Leone, &c.....	1881	17,609	669,966
	Liberia.....	.....	50,000	1,500,000
	Lower Guinea.....	.....	280,000	2,000,000
	Madagascar.....	.....	228,570	3,000,000
	Morocco.....	.....	260,000	6,000,000
	Orange Free State.....	.....	42,470	50,000
	Portuguese Settlements.....	.....	697,365	2,410,000
	Sahara.....	.....	2,500,000	5,000,000
	Senegambia.....	.....	147,000	4,000,000
	Soudan.....	.....	1,250,000	30,000,000
	Transvaal.....	.....	114,360	700,000
	Tripoli.....	.....	344,400	1,200,000
	Tunis.....	.....	45,716	1,500,000
	Zanzibar.....	.....	100,090	5,000,000
	Total.....	.....	11,774,720	138,190,466

No. 14.—AREA and Population of the Globe, &c—*Continued.*

Continent.	Country.	Years of Census.	Area, English Square Miles.	Population.
America.....	Dominion of Canada	1881	3,470,392	4,324,810
	Greenland.....		750,000	14,000
	Mexico.....		741,820	9,650,000
	Newfoundland.....	1874	40,200	161,389
	United States.....	1880	3,603,884	50,152,866
			8,606,296	64,303,065
	Central America		164,900	2,600,000
	West Indies.....		150,000	4,500,000
	Argentine Republic.....	1880	1,357,496	2,540,000
	Bolivia		500,870	2,325,000
	Brazil.....		3,288,000	10,200,000
	Chili.....	1882	182,790	2,234,000
	Colombia		320,750	3,100,000
	Ecuador.....		248,380	1,066,000
	Guiana.....	1881	178,370	341,800
	Patagonia.....		375,000	200,000
	Paraguay.....		56,700	293,844
	Peru.....		503,380	3,374,000
	Uruguay	1880	69,800	450,000
	Venezuela.....	1881	403,276	2,075,241
	Total.....		16,406,408	99,602,954
Australasia.....	Australia.....	1881	2,946,555	2,235,734
	New Zealand.....	1881	106,260	489,994
	Tasmania.....	1881	26,215	115,704
	Total.....		3,079,030	2,841,434
Polynesia.....			350,000	30,000,000

RECAPITULATION.

Europe	about	3,800,000	329,000,000
Asia	do	17,600,000	844,000,000
Africa	do	11,800,000	139,000,000
America	do	16,500,000	100,000,000
Australasia	do	3,100,000	3,000,000
Polynesia	do	350,000	30,000,000
Various		53,150,000	1,445,009,000
Grand total		53,150,000	1,450,150,000

No. 15.—TABLE of the British Possessions throughout the World, with their Population and Area in English Square Miles, in 1881.

	Area.	Population.
	Eng. sq. miles.	
In Europe—		
British Islands.....	121,115	36,100,000
Gibraltar.....		23,991
Heligoland.....		2,001
Malta and Gozo.....	117	149,782
In Asia—		
British India (including Dependent States).....	1,558,254	254,000,000
Ceylon.....	24,702	2,758,166
Straits Settlements (Singapore, etc.).....	1,440	350,000
Aden (including Perim Island).....	70	35,163
Hong Kong.....	32	160,402
Labuan Island.....	30	6,000
In Africa—		
Gambia River.....	21	14,150
Sierra Leone.....	468	60,546
Gold Coast Colony.....	16,620	520,000
Lagos.....	75,270	
Cape Colony.....	240,110	1,249,824
Natal.....	18,750	361,537
Mauritius and Dependencies (Rodriguez, etc.).....	704	359,419
Ascension Island.....	35	
St. Helena Island.....	47	5,059
In North America—		
Dominion of Canada.....	3,470,392	4,324,810
Newfoundland.....	40,200	161,389
British Honduras or Belize.....	6,500	27,452
Jamaica.....	4,256	580,804
Bahama Islands.....	5,794	43,521
Trinidad and other West India Islands.....	3,287	989,059
Bermuda Islands.....	41	14,434
In South America—		
British Guiana.....	85,000	252,186
Falkland Islands.....	4,740	1,543
In Oceania—		
New South Wales, Australia... ..	310,937	750,000
Victoria do	87,884	862,346
Queensland do	668,224	213,525
South Australia.....	903,690	279,865
West Australia.....	975,824	30,200
Tasmania	26,215	115,705
New Zealand.....	106,260	489,993
Total of British Empire throughout the world.....	8,757,029	305,292,872

No. 16.—TABLE of Largest Empires.

	Area in square miles.	Population at last Census.	Population per square mile.
British Empire.....	8,757,029	305,292,872	34·7
Russian Empire.....	8,325,293	100,038,342	12·0
Chinese Empire.....	4,540,000	435,000,000	96·0
United States.....	3,002,852	52,152,866	17·3
Brazilian Empire.....	3,288,000	10,200,000	3·1
French Republic.....	204,096	37,672,048	184·5
German Empire.....	208,744	45,194,177	216·5
Spain (including Colonies).....	320,975	24,914,000	77·6
Italy.....	114,408	28,459,451	248·7

No. 17.—POPULATION OF THE GLOBE BY RACES.

TAKEN FROM KEITH JOHNSTON'S GEOGRAPHY, LONDON, 1880.

Indo-Germanic, or Aryan	550,000,000
Mongolian, or Turanian	635,000,000
Semitic and Hamitic	65,000,000
Negro and Bantu	150,000,000
Hottentot and Bushmen	150,000
Malay and Polynesian.....	35,000,000
American Indian	15,000,000
Total	1,450,150,000

No. 18.—POPULATION OF THE GLOBE BY RELIGIONS.

TAKEN FROM KEITH JOHNSTON'S GEOGRAPHY, LONDON, 1880.

Christians.....	375,000,000
Jews.....	7,000,000
Mohammedans.....	170,000,000
Buddhists.....	503,000,000
Hindus	177,000,000
Heathen and Fetish Worshipers.	170,000,000
Various and Unknown.....	48,150,000
Total	1,450,150,000

N. B.—The population of the Chinese Empire is stated variously in different authors. The greatest has been taken in these tables.

APPENDIX No. 25.

PART IV.

COMPARATIVE TABLES OF DISTANCES, ETC.,
FROM LIVERPOOL, ENGLAND, ON THE ATLANTIC,
TO YOKOHAMA, JAPAN, ON THE PACIFIC,
BY THE SHORTEST OCEAN ROUTES,
AND BY THE SHORTEST TRUNK LINES OF RAILWAY,
IN CANADA AND THE UNITED STATES IN NORTH AMERICA,
CONNECTING THE TWO OCEANS.

N. B.—See Notes at the end of these tables respecting Transfer of North Shore Railway, between Quebec and Montreal, to the Canadian Pacific Railway Company, on 19th September 1885, and also respecting progress of the last named railway up to the most recent date prior to the publication of these notes.

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APPENDIX No 25.

PART IV.

INDEX to Comparative Tables of Distances, &c., from Liverpool, England, to Yokohama, Japan, by the shortest Ocean and Railway Routes, through Canada to Port Moody and the United States to San Francisco.

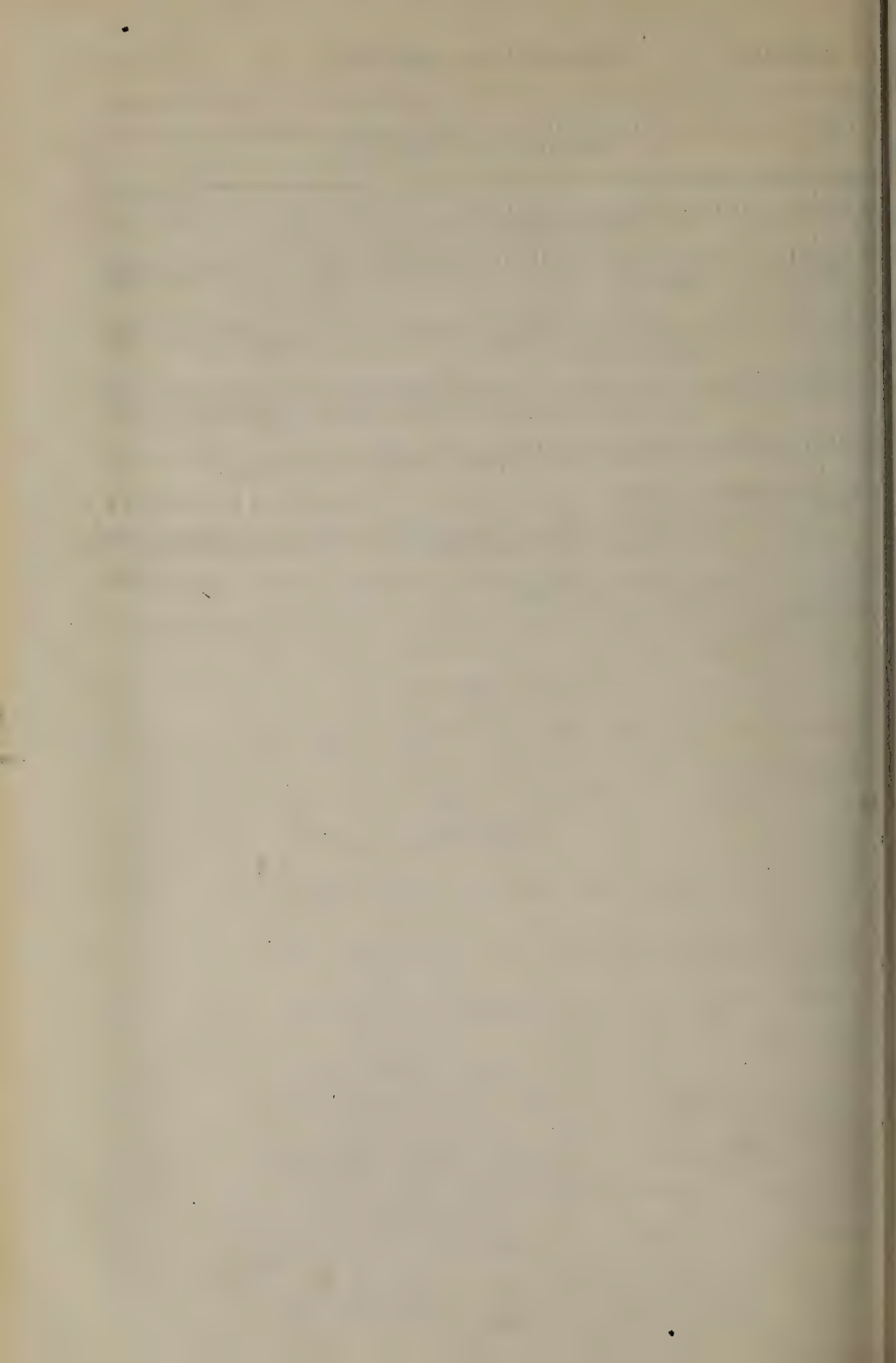
No. 1...	A 1....	QUEBEC Route:—Liverpool to Quebec <i>via</i> Cape Race; thence to Port Moody <i>via</i> North Shore and Canadian Pacific Railways; also, by water from Victoria, Vancouver Island, to San Francisco.
No. 1...	A 2.....	QUEBEC Route:—Liverpool to Quebec <i>via</i> Strait of Belle-Ile; thence to Port Moody <i>via</i> North Shore and Canadian Pacific Railways; also, by water from Victoria, Vancouver Island, to San Francisco.
No. 2...	B.....	QUEBEC, Owen Sound, Lakes Huron and Superior Route:—By North Shore Railway to Montreal; Canadian Pacific Railway to Ottawa; thence Subsidiary Line of C.P.R. to Owen Sound; thence across Lakes Huron and Superior to Port Arthur; thence C.P.R. to Port Moody. Summer route by railway and lake steamers, 1884-85.
No. 3...	O	QUEBEC and Chicago Route:—By North Shore Railway to Montreal; Grand Trunk Railway to Detroit; United States Railway to Chicago, St. Paul and Emerson; thence C.P.R. to Winnipeg and Port Moody.
No. 4...	D 1.....	LOUISBOURG and Quebec Route, with Branch Lines to St. John, St. Andrew's, &c.:—By Intercolonial, North Shore and Canadian Pacific Railways.
No. 5...	D 2.....	LOUISBOURG, St. John, Mattawamkeag, Sherbrooke, Montreal and Port Moody Route:—By Intercolonial, New Brunswick, International, Grand Trunk and Canadian Pacific Railways.
No. 6...	E 1.....	HALIFAX and Quebec Route, with Branch Lines to St. John and St. Andrew's:—By Intercolonial, North Shore and Canadian Pacific Railways.
No. 7...	E 2.....	HALIFAX, St. John, Mattawamkeag, Sherbrooke, Montreal and Port Moody Route:—By Intercolonial, New Brunswick, International, Grand Trunk and Canadian Pacific Railways.
No. 8...	F 2.....	ST. JOHN, Edmundston and Quebec Route:—By Fredericton and Edmundston Railway, Témiscouata Road and Intercolonial Railway to Quebec; thence to Port Moody by North Shore and Canadian Pacific Railways.
No. 8...	F 1.	ST. JOHN, Moncton and Quebec Route:—By Intercolonial Railway from St. John to Quebec <i>via</i> Moncton; thence to Port Moody by North Shore and Canadian Pacific Railways.
No. 9...	F 3.....	ST. JOHN, Mattawamkeag, Sherbrooke, Montreal and Port Moody Route:—By New Brunswick, International, Grand Trunk and Canadian Pacific Railways.
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INDEX to Comparative Tables of Distances, &c., from Liverpool, England, to Yokohama, Japan, &c.—*Continued.*

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A 1 to H.

ROUTES THROUGH CANADA
VIA
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FOR DETAILS, SEE NOS. 1 TO 25.

FOR SUMMARY OF CANADIAN ROUTES, SEE NO. 19.

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SYMPOSIUM

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION
PUBLISHED WEEKLY
CHICAGO, ILL., MAY 1, 1924

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ROUTES A 1, A 2.

Distances from Liverpool, England, to Yokohama, Japan.

No. 1.—QUEBEC ROUTE.

By Main Trunk Line of North Shore and Canadian Pacific Railways.

Also Water and Railway Route to Victoria, Vancouver Island, and San Francisco, California.

From	To	Intermediate Mileage. Statute Miles.	Geographical Miles.	Statute Miles.
Liverpool	Quebec <i>via</i> Cape Race..... Atlantic Ocean		2,819·0	3,249
Quebec	Three Rivers..... North Shore Railway	77	66·8	77
	St. Martin Junction, 12 miles from Montreal...	82	137·9	159
	Ottawa..... Canadian Pacific Railway	108	231·6	267
	Sudbury Junction	324	512·7	591
	Port Arthur.....	547	987·3	1,138
	Winnipeg	429	1,359·5	1,567
	Portage la Prairie	56	1,408·0	1,623
	Brandon	77	1,474·8	1,700
	Qu'Appelle.....	191	1,640·5	1,891
	Regina	33	1,669·2	1,934
	Calgary.....	482	2,087·3	2,406
	Stephen	123	2,194·0	2,529
	Savona Ferry	268	2,426·5	2,797
	Port Moody.....	215	2,613·1	3,012
Port Moody	Yokohama..... Pacific Ocean		4,374·0	5,042
Total—Liverpool ...	Yokohama <i>via</i> Cape Race, Quebec and Main Trunk Line of North Shore and Canadian Pacific Railways	A. 1.	9,806·0	11,303
	Deduct difference between Cape Race and Strait of Belle-Ile ..		158·0	182
Total—Liverpool ...	Yokohama <i>via</i> Strait of Belle-Ile.	A. 2.	9,648·0	11,121
Total—Quebec.....	do do		6,839·0	7,872
Liverpool	Port Moody <i>via</i> Quebec, N. S. and C. P. Railways		5,431·7	6,261
Port Moody	Nanaimo, Vancouver Island..... Strait of Georgia		39·0	45
Nanaimo	Victoria do		63·3	73
Total—Liverpool ...	do do		5,534·0	6,379
Victoria	San Francisco, California	Pacific Ocean	759·0	875
Total—Liverpool	do <i>via</i> Quebec and Port Moody		6,293·0	7,254
Total—Quebec.....	San Francisco <i>via</i> Quebec and Port Moody		3,474·0	4,005

N.B.—For details respecting North Shore and Canadian Pacific Railways and branches, as regards portions completed, subsidies, cost, &c., see tables Nos. 13, 14, 20.

For comparative statements of distances on various routes, see tables Nos. 17, 18, 19.

ROUTE B.

Distances from Liverpool, England, to Yokohama, Japan.

No. 2.—QUEBEC, OWEN SOUND, LAKES HURON AND SUPERIOR ROUTE.

By North Shore Railway to Montreal ; main trunk line of Canadian Pacific Railway to Ottawa ; thence subsidiary line of Canadian Pacific Railway to Owen Sound ; thence across Lakes Huron and Superior to Port Arthur ; thence main line, Canadian Pacific Railway, to Port Moody.

Summer route by railway and lake steamers, 1884-1885.

From	To	Intermediate Miles. Statute Miles.	Geo- graphical Miles.	Statute Miles.
Liverpool	Quebec <i>viâ</i> Cape Race	Atlantic Ocean	2,819 0	3,259
Quebec.....	Three Rivers	North Shore Railway	77	66.8
	St. Martin Junction, 12 miles from Montreal.....		82	137.9
	Ottawa.....	Canadian Pacific Railway	108	231.6
	Perth.....	Subsidiary line, Canadian Pacific Railway	59	282.8
	Toronto Junction, 4½ miles from Toronto.....		199	455.4
	Orangeville.....		433	493.1
	Owen Sound		734	556.9
	Sault Ste. Marie Canal.....	Lake Huron	250	773.8
	Port Arthur.....	Lake Superior	280	1,016.7
	Winnipeg	Canadian Pacific Railway	429	1,388.9
	Portage la Prairie		56	1,437.5
	Brandon.....		77	1,504.3
	Qu'Appelle		191	1,670.0
	Regina		33	1,698.7
	Calgary.....		482	2,116.8
	Stephen		123	2,223.5
	Savona Ferry		268	2,456.0
	Port Moody		215	2,642.5
Port Moody	Yokohama.....		4,374.0	5,042
Total—Liverpool	Yokohama, <i>viâ</i> Quebec, North Shore Railway and subsidiary line of Canadian Pacific Railway, Lakes Huron and Superior <i>viâ</i> Cape Race		9,835 0	11,337
	Deduct difference between Cape Race and Strait of Belle-Ile.....		158 0	182
	Yokohama, <i>viâ</i> Strait of Belle-Ile.....		9,677.0	11,155

N.B.—For comparative statement of distances from Montreal and Ottawa to Toronto, *viâ* Canadian Pacific main trunk, subsidiary, and branch lines, and Grand Trunk Railway, see No. 15.
For comparative statement of distances on the various routes, see Nos. 17, 18, 19.

ROUTE C.

Distances from Liverpool, England, to Yokohama, Japan.

No. 3.—QUEBEC AND CHICAGO ROUTE.

By North Shore Railway to Montreal; thence Grand Trunk Railway to Detroit; thence United States Railways to Chicago, St. Paul and Emerson; thence Canadian Pacific Railway to Winnipeg and Port Moody.

United States and Canada.

From	To	Intermediate Miles. Statute Miles.	Geo- graphical Miles.	Statute Miles.
Liverpool.....	Quebec <i>via</i> Cape Race Atlantic Ocean		2,819.0	3,249
Quebec.....	Montreal North Shore and C.P.R.	171	148.4	171
	Toronto Grand Trunk Railway	333	437.2	504
	Detroit	231	637.6	735
	Chicago United States Railways	268	870.2	1,003
	St. Paul West	410	1,225.8	1,413
	Minneapolis	10	1,234.5	1,423
	Emerson	381	1,565.1	1,804
	Winnipeg Canadian Pacific Railway	66	1,622.3	1,870
	Portage la Prairie	56	1,670.9	1,926
	Brandon	77	1,737.7	2,003
	Qu'Appelle	191	1,903.4	2,194
	Regina	33	1,932.0	2,227
	Calgary	482	2,350.2	2,709
	Stephen	123	2,456.9	2,832
	Savona's Ferry	268	2,689.4	3,100
	Port Moody	215	2,875.9	3,315
Port Moody	Yokohama Pacific Ocean		4,374.0	5,042
Total--Liverpool	Yokohama <i>via</i> Cape Race, Quebec and Chicago		10,069.0	11,606
	Deduct difference between Cape Race and Strait of Belle-Ile		158.0	182
	Yokohama <i>via</i> Cape Race, Quebec and Chicago		9,911.0	11,424

N.B.—For comparative table of distances from the various points along this route to Port Moody, see No. 16.

For comparative statement of distances on various routes, see Nos. 17, 18, 19.

ROUTE D 1.

Distances from Liverpool, England, to Yokohama, Japan.

No. 4.—LOUISBOURG AND QUEBEC ROUTE WITH BRANCH LINES TO ST. JOHN, ST. ANDREW'S, &C.

By Intercolonial, North Shore and Canadian Pacific Railways.

From	To	Intermediate Mileage. Statute Miles.	Geo- graphical Miles.	Statute Miles.
Liverpool.....	Louisbourg Atlantic Ocean		2,350·0	2,709
Louisbourg	Port Mulgrave Projected Railway	80	69·4	80
	New Glasgow... Branch Intercolonial Railway	80	138·8	160
	Truro Intercolonial Railway	43	176·1	203
	Moncton Intercolonial Railway	125	284·6	328
	Chatham Junction.....	72	347·0	400
	Rimouski.....	237	552·6	637
	Rivière du Loup	65	609·0	702
	Quebec.....	126	718·3	828
	St. Martin Junction North Shore Railway	159	856·3	987
	Montreal	12	866·7	999
	Ottawa <i>via</i> St. Martin.... Canadian Pacific Ry.	108	950·0	1,095
	Sudbury Junction	324	1,231·0	1,419
	Port Arthur	547	1,705·6	1,968
	Winnipeg.....	429	2,077·8	2,395
	Portage la Prairie	56	2,126·4	2,451
	Brandon.....	77	2,193·1	2,528
	Qu'Appelle.....	191	2,358·9	2,719
	Regina.....	33	2,387·5	2,752
	Calgary.....	482	2,805·7	3,234
	Stephen.....	123	2,912·4	3,357
	Savona Ferry.....	268	3,144·9	3,625
	Port Moody.....	215	3,331·4	3,840
Port Moody	Yokohama..... Pacific Ocean		4,374·0	5,045
Total—Liverpool	Yokohama <i>via</i> Louisbourg, Intercolonial, North Shore and Canadian Pacific Railways		10,055·0	11,591
Liverpool	Louisbourg..... Atlantic Ocean		2,350·0	2,709
Louisbourg	Truro Branch Intercolonial Railway		176·0	20
Truro	Halifax Intercolonial Railway		54·0	6
Total—Liverpool	Halifax <i>via</i> Truro and Intercolonial Railway.....		2,580·0	2,97
Liverpool	Louisbourg		2,350·2	2,70
Louisbourg	Truro		176·1	20
Truro	Moncton		108·4	12
Moncton	St. John		77·2	8
Total—Liverpool	St. John <i>via</i> Louisbourg, Truro, Moncton		2,711·9	3,12
	St. Andrew's do do		2,785·6	3,21
	St. Stephen do do		2,856·7	3,28

N.B.—For comparative statements of distances on various routes, and subsidies, see Nos. 17, 19, 21, and notes at the end of these tables.

ROUTE D 2.

Distances from Liverpool, England to Yokohama, Japan.

No. 5.—LOUISBOURG, ST JOHN, MATTAWAMKEAG, SHERBROOKE, MONTREAL AND PORT MOODY ROUTE.

From	To	Geo- graphical Miles.	Statute Miles.
Liverpool	Louisbourg.....Atlantic Ocean	2,350	2,709
Louisbourg.....	New Glasgow—See Route D 1.....	139	160
New Glasgow.....	St. John, N.B.....Intercolonial Railway	223	257
St. John.....	Mattawamkeag Junction...St. John & Maine and European & North American Railways	128	147
Mattawamkeag Junc- tion.....	Lake Megantic..Projected continuation of International Ry.	117	135
Lake Megantic.....	Sherbrooke.....International Railway	60	69
Sherbrooke.....	Montreal .....Grand Trunk Railway	88	101
Montreal	St. Martin Junction.....Canadian Pacific Railway	10	12
St. Martin Junction..	Port Moody...Canadian Pacific Railway—For details, see D 1.....	2,475	2,853
Total—Louisbourg ..	Port Moody.....Railway	3,240	3,734
Port Moody.....	Yokohama.....Pacific Ocean	4,374	5,042
Total—Liverpool.....	Yokohama, <i>via</i> Louisbourg, St. John, Mattawamkeag, Sher- brooke, Montreal and Port Moody.....	9,964	11,485

N.B.—For comparative statements of distances on the various routes, see Nos. 17, 18, 19.

For subsidies, see Nos. 21, 23, and notes at the end of these tables.

St. John to Vanceboro'.....New Brunswick Railway, 91·5 Statute Miles.

Vanceboro' to Mattawamkeag.....Maine Central Railway, 56·0 do

Vanceboro' to Portland.....do do 250·7 do

ROUTE E 1.

Distances from Liverpool, England, to Yokohama, Japan.

No. 6.—HALIFAX AND QUEBEC ROUTE WITH BRANCH LINES TO ST. JOHN AND ST. ANDREW'S.

By Intercolonial, North Shore and Canadian Pacific Railways.

From	To	Intermediate Mileage: Statute Miles.	Geo- graphical Miles.	Statute Miles.
Liverpool.....	Halifax, Nova Scotia..... Atlantic Ocean.....		2,500·0	2,891
Halifax.....	Truro..... Intercolonial Railway	62	53·8	62
	Moncton.....	125	162·2	197
	Chatham Junction.....	72	224·7	259
	Rimouski.....	237	430·3	496
	Rivière du Loup.....	85	486·7	561
	Quebec.....	126	596·0	687
	Three Rivers..... North Shore Railway	77	662·8	764
	St. Martin Junction.....	82	733·9	846
	Ottawa..... Canadian Pacific Railway	108	827·6	954
	Sudbury Junction.....	324	1,108·7	1,278
	Port Arthur.....	547	1,583·3	1,825
	Winnipeg.....	429	1,955·5	2,254
	Portage la Prairie.....	56	2,004·0	2,310
	Brandon.....	77	2,070·8	2,387
	Qu'Appelle.....	191	2,236·5	2,578
	Regina.....	33	2,265·2	2,611
	Calgary.....	482	2,683·3	3,093
	Stephen.....	123	2,790·0	3,216
	Savona's Ferry.....	268	3,022·5	3,484
	Port Moody.....	215	3,209·1	3,699
Port Moody.....	Yokohama..... Pacific Ocean.....		4,374·0	5,042
Total--Liverpool	Yokohama, <i>via</i> Halifax, Quebec and C.P.R.....		10,083·0	11,622
Liverpool.....	Halifax..... Atlantic Ocean		2,499·4	2,881
Halifax.....	Truro..... Intercolonial Railway	62	52·3	62
Truro.....	Moncton.....	108	108·4	125
Moncton.....	St. John.....	77	77·2	89
Total--Liverpool	St. John, <i>via</i> Halifax and Moncton.....		2,738·8	3,157
St. John.....	St. Andrew's..... Grand Southern Railway		73·7	85
Total--Liverpool	St. Andrew's, <i>via</i> Halifax, Moncton and St. John.....		2,812·5	3,242

N.B.—For comparative statements of distances on the various routes, see Nos. 17, 18, 19.
For subsidy, see No. 24.
See notes at end of these tables.

ROUTE E 2.

Distances from Liverpool, England, to Yokohama, Japan.

No. 7.—HALIFAX, ST. JOHN, MATTAWAMKEAG, SHERBROOKE, MONTREAL AND PORT MOODY ROUTE.

From	To	Geo- graphical Miles.	Statute Miles.
Liverpool	Halifax..... Atlantic Ocean	2,500	2,881
Halifax.....	St. John..... Intercolonial Railway	239	276
St. John	St. Martin Junction—For details, see Route D 2.	403	464
St. Martin Junction..	Port Moody—For details, see Route D 1.	2,475	2,853
Total—Halifax.....	Port Moody..... Railway	3,117	3,593
Port Moody.....	Yokohama Pacific Ocean	4,374	5,042
Total—Liverpool....	Yokohama, <i>via</i> Halifax, St. John, Mattawamkeag, Sher- brooke, Montreal and Port Moody.....	9,991	11,516

N.B.—For comparative statements of distances on the various routes, see Nos. 17, 18, 19.
 For subsidy, see Nos. 23, 34.
 See notes at end of these tables.

ROUTES F 1, F 2.

Distances from Liverpool, England, to Yokohama, Japan.

No. 8.—ST. JOHN, NEW BRUNSWICK AND QUEBEC ROUTE, with Branch Line to St. Andrew's.

By Fredericton and Edmundston Railway, Témiscouata Road and Intercolonial Railway to Quebec; thence by North Shore and Canadian Pacific Railways.

From	To	Intermediate Mileage. Statute Miles.	Geo- graphical Miles.	Statute Miles.
Liverpool.....	St. John..... Atlantic Ocean		2,700·0	3,112
St. John.....	Fredericton Junction..... New Brunswick Railway	46	39·9	46
	Fredericton	22	59 0	68
	Edmundston.....	160	197·8	228
	Rivière du Loup, Témiscouata Road...Projected railway	80	267·2	308
	Quebec	126	376·5	434
	Three Rivers..... North Shore Railway	77	443·3	511
	St. Martin Junction, 12 miles from Montreal	82	514·5	593
	Ottawa..... Canadian Pacific Railway	108	608·2	701
	Sudbury Junction	324	889·2	1,025
	Port Arthur	547	1,363·7	1,572
	Winnipeg	429	1,736·0	2,001
	Portage la Prairie	56	1,784·6	2,057
	Brandon	77	1,851·4	2,134
	Qu'Appelle	191	2,017·1	2,325
	Regina	33	2,045·7	2,358
	Calgary	482	2,463·8	2,840
	Stephen	123	2,570·6	2,963
	Savona Ferry	268	2,803·1	2,231
	Port Moody	215	2,989·6	3,446
Port Moody.....	Yokohama..... Pacific Ocean		4,374·0	5,042
Total--Liverpool	Yokohama, <i>via</i> St. John, Fredericton, Quebec, North Shore and Canadian Pacific Railways. F. 2.		10,064·0	11,600
Liverpool	St. John		2,700·0	3,112
St. John.....	Moncton..... Intercolonial Railway		77·2	89
Moncton.....	Quebec		433·8	500
Total--Liverpool	Quebec, <i>via</i> St. John, Moncton..... Intercolonial Railway		3,211·0	3,701
	Ottawa, <i>via</i> St. John, Moncton...Intercolonial, North Shore and Canadian Pacific Railway		3,442·0	3,968
	Winnipeg		4,570·0	5,268
	Port Moody		5,824·0	6,713
	Yokohama..... Pacific Ocean. F. 1.		10,198 0	11,755
St. John	Halifax, <i>via</i> Moncton and Truro..... Intercolonial Railway		239·4	276
	Fredericton, <i>via</i> Fredericton Junction		59·0	68
	St. Andrew's, <i>via</i> Grand Southern Railway.....		73·7	85

N.B.—For comparative statements of distances on the various routes, see Nos. 17, 18, 19.
For subsidy, Edmundston to Rivière du Loup, see No. 22.
See notes at end of these tables.

ROUTE F 3.

Distances from Liverpool, England, to Yokohama, Japan.

No. 9.—ST. JOHN, MATTAWAMKEAG, SHERBROOKE, MONTREAL AND PORT MOODY ROUTE.

From	To	Geo- graphical Miles.	Statute Miles.
Liverpool	St. John Atlantic Ocean	2,700	3,112
St. John.....	Mattawamkeag Junction...St. John and Maine and European and North American Railways...	128	147
Mattawamkeag Junc- tion	St. Martin Junction—For details, see Route D 2.....	275	317
St. Martin Junction..	Port Moody—For details, see Route D. 1.....	2,475	2,853
Total—St. John	Port Moody..... Railway	2,878	3,317
Port Moody	Yokohama..... Pacific Ocean	4,374	5,042
Total—Liverpool....	Yokohama, <i>via</i> St. John, Mattawamkeag, Sherbrooke, Mon- treal and Port Moody.....	9,952	11,471

N.B.—For comparative statements of distances on the various routes, see Nos. 17, 18, 19.

For subsidy, see No. 23.

St. John to Vanceboro' New Brunswick Railway, 91.5 Statute Miles.

Vanceboro' to Mattawamkeag Maine Central Railway, 56.0 do

See notes at end of these tables.

ROUTE G 1.

Distances from Liverpool, England, to Yokohama, Japan.

No. 10.—ST. ANDREW'S, NEW BRUNSWICK AND QUEBEC ROUTE with Branch Line to St. John.

By Woodstock and Edmundston, Intercolonial, North Shore and Canadian Pacific Railways.

From	To	Intermediate Mileage. Statute Miles.	Geo- graphical Miles.	Statute Miles.
Liverpool	St. Andrew's..... Atlantic Ocean		2,680·0	3,089
St. Andrew's.....	McAdam Junction....New Brunswick Railway	43	37·3	43
	Woodstock	51	81·5	94
	Edmundston	113	179·6	207
	Rivière du Loup	80	249·0	287
	Quebec.....Intercolonial Railway	126	358·3	413
	Three Rivers.....North Shore Railway	77	425·1	490
	St. Martin Junction, 12 miles from Montreal...	82	496·2	572
	Ottawa.....Canadian Pacific Railway	108	589·9	680
	Sudbury Junction.....	324	871·0	1,004
	Port Arthur	547	1,345·6	1,551
	Winnipeg	429	1,717·8	1,980
	Portage la Prairie	56	1,766·3	2,036
	Brandon	77	1,833·1	2,113
	Qu'Appelle.....	191	1,998·8	2,304
	Regina	33	2,027·5	2,337
	Calgary	482	2,445·6	2,819
	Stephen	123	2,552·3	2,942
	Savona Ferry	268	2,784·8	3,210
	Port Moody	215	2,971·3	3,425
Port Moody.....	Yokohama..... Pacific Ocean		4,374·0	5,042
Total—Liverpool	Yokohama, <i>via</i> St. Andrew's, Woodstock, Quebec, North Shore and Canadian Pacific Railways		10,025·0	11,556
Liverpool	St. Andrew's		2,680·0	3,089
St. Andrew's	McAdam Junction	43	37·3	43
McAdam Junction	Fredericton Junction.....	40	34·7	40
Fredericton Junction	Fredericton	22	19·1	22
Fredericton	Edmundston	160	138·8	160
Edmundston.....	Rivière du Loup. Témiscouata Road. Projected Railway.....	80	89·4	80
Rivière du Loup.....	Quebec..... Intercolonial Railway	126	109·3	126
		471		
Total—Liverpool ...	Quebec, <i>via</i> St. Andrew's, McAdam Junction, Fredericton, Edmundston and Rivière du Loup		3,088·5	3,560
Fredericton	St. John, <i>via</i> Fredericton Junction.... Railway	68	59·0	68
St. Andrew's	St. John, <i>via</i> Grand Southern Railway....	85	73·7	85

N.B.—For comparative statements on the various routes, see Nos. 17, 18, 19. For subsidy from Edmundston to Rivière du Loup, see No. 22, see notes also at end of these tables.

ROUTE G 2.

Distances from Liverpool, England, to Yokohama, Japan.

No. 11.—ST. ANDREW'S, MATTAWAMKEAG, SHERBROOKE, MONTREAL AND PORT MOODY ROUTE.

From	To	Geo- graphical Miles.	Statute Miles.
Liverpool	St. Andrew's..... Atlantic Ocean	2,680	3,089
St. Andrew's	Mattawamkeag Junction, New Brunswick and European and North American Railways	91	105
Mattawamkeag Junction.....	St. Martin Junction—For details, see Route D 2.....	275	317
St. Martin Junction.	Port Moody—For details, see Route D 1.....	2,475	2,853
Total—St. Andrew's	Port Moody..... Railway	2,841	3,275
Port Moody	Yokohama Pacific Ocean	4,374	5,042
Total—Liverpool.....	Yokohama, <i>via</i> St. Andrew's, Mattawamkeag, Sherbrooke, Montreal and Port Moody.....	9,895	11,406

N.B.—For comparative statements of distances on the various routes, see Nos. 17, 18 and 19.

For subsidy, see No. 23.

St. Andrew's to Vanceboro'..... New Brunswick Railway, 49 Statute miles.

Vanceboro' to Mattawamkeag Junction..Maine Central Railway, 56 do

See notes at end of these tables.

ROUTE H.

Distances from Liverpool, England, to Yokohama, Japan.

No. 12.—CHATHAM, NEW BRUNSWICK, EDMUNDSTON AND QUEBEC ROUTE.
By Projected Railway.

From	To	Intermediate Mileage. Statute Miles.	Geo- graphical Miles.	Statute Miles.
Liverpool	Chatham, R. Miramichi. Atlantic Ocean, <i>via</i> Cape Race		2,558.0	2,949
Chatham	Chatham Junction.....Intercolonial Railway	9	7.8	9
	Edmundston.....Projected Railway	165	143.0	165
	Quebec .....Projected Railway	170	290.6	335
	Montreal, St. Martin Junction....North Shore Railway	159	428.5	494
	Ottawa.....Canadian Pacific Railway	108	522.3	602
	Winnipeg	1,300	1,650.1	1,902
	Port Moody	1,445	2,903.7	3,347
Port Moody.	Yokohama. ....Pacific Ocean		4,374.0	5,042
Total--Liverpool	Yokohama, <i>via</i> Projected Railway, Chatham, Edmundston and Quebec		9,836.0	11,338

N.B.—For comparative statements of distances on the various routes, see Nos. 17, 18 and 19.
See notes also at end of these tables.

DETAILS—ROUTE A—*Continued.*

CANADIAN PACIFIC RAILWAY.

No. 14.—Main Trunk, Branch and Subsidiary Lines, 1884.

Statute Miles from Montreal.	From	To	Statute Miles.	Total.
MAIN TRUNK LINE, Montreal to Port Moody, 1,952 miles operated. About 913 miles remaining to be completed. (See note below)...			2,865	2,865
BRANCH LINES				
19	Ste. Thérèse	St. Eustache.....	8	
19	Ste. Thérèse.....	St. Jérôme	14	
21	St. Lin Junction.....	St. Lin	13	
118	Hull	Aylmer	7	
120	Ottawa, <i>via</i> St. Lawrence and Ottawa Railway.	Prescott	54	
149	Carleton Place Junction	Brockville.....	46	
167	Smith's Falls.....	Perth	12	
444	Sudbury Junction	Algoma Mills	93	
1,399	East Selkirk.....	Colville Landing ...	2	
1,419	St. Boniface, 1 mile from Winnipeg Junction...	Emerson	64	
1,420	Winnipeg	Gretna	70	
1,476	Pembina Junction, Rosenfield	Manitou	46	
1,476	do do	Emerson	15	
1,420	Winnipeg	West Selkirk	22	
1,421	Air Line Junction, 1 mile from Winnipeg	Stonewall	19	
1,420	Winnipeg, <i>via</i> Manitoba South-Western Colonization Railway	End of track.....	51	
Total—Branch Lines.....			536	536
SUBSIDIARY LINES ACQUIRED BY LEASE OR PURCHASE.				
<i>Ontario and Quebec Railway.</i>				
179	Perth	Toronto Junction ...	199	
<i>Credit Valley Railway.</i>				
382½	Toronto, Union Station	St. Thomas	121	
	Streetsville Junction ...	Orangeville ...	35	
	Church Falls	Elora	27	
<i>Toronto, Grey and Bruce Railway.</i>			183	
382½	Toronto	Owen Sound.....	122	
	Orangeville Junction.....	Teeswater	70	
Total—Subsidiary Lines			192	
Total—Subsidiary Lines			574	574
Total—Main Trunk, Branch Lines and Subsidiary Lines, under Canadian Pacific Railway Company, up to October, 1884...				3,975

N.B.—On 20th July, 1884, the above Railways were completed and operated, excepting 430 miles, north of Lakes Huron and Superior, also 268 miles west from summit of Rocky Mountains to Savona Ferry, and 215 miles thence to Port Moody, the whole in progress and to be completed, part in 1885 and the remainder in 1886. The Branch to Algoma Mills, not fully completed, to be operated in 1885.

See Nos. 1 and 13. For progress made since July, 1884, see notes at end of these tables.

DETAILS—ROUTE B.
No. 15.—COMPARATIVE STATEMENT.

Distances from Montreal and Ottawa to Toronto *via* Canadian Pacific and Great
Trunk Railways.

From	To	Geo- graphical Miles.	Statu Mile
Montreal	Ottawa..... <i>via</i> C. P. R.	104	1
Ottawa.....	Perth..... do	51½	1
Perth	Toronto (Union Station)..... do	176½	2
Montreal.....	Toronto..... <i>via</i> C. P. R.	331½	3
Montreal	Prescott..... <i>via</i> G. T. R.	97	1
Prescott.....	Brockville..... do	11½	1
Brockville.....	Kingston..... do	40½	1
Kingston	Toronto (Union Station)..... do	139½	1
Montreal	Toronto..... <i>via</i> G. T. R.	288½	3
Ottawa	Toronto (Union Station) <i>via</i> C. P. R.....	227½	2
do	do <i>via</i> P., St. L. and O. and G. T. R.	238½	2
do	do <i>via</i> Brockville, C. P. R. and G.	245½	2

N.B.—See table of distances No. 2.
See notes also at end of these tables.

DETAILS—ROUTE C.

No. 16—COMPARATIVE TABLE OF DISTANCES—Statute Miles.

from Quebec and other places to Port Moody, *via* North Shore, Grand Trunk, United States and Canadian Pacific Railways.

Present Summer and Winter Route.

Canadian and United States Territories.

From	To	Intermediate.	Quebec.	Montreal.	Toronto.	Detroit.	Chicago.	St. Paul.	Winnipeg.
Quebec.....	Quebec.....	.....	0	171	504	735	1,003	1,413	1,870
Quebec.....	Montreal.....	171	171	0	333	564	832	1,242	1,699
Montreal.....	Toronto.....	333	504	333	0	231	499	909	1,366
Montreal.....	Detroit.....	231	735	564	231	0	268	678	1,135
Detroit.....	Chicago.....	268	1,003	832	499	268	0	410	867
Chicago.....	St. Paul, W.....	410	1,413	1,242	909	678	410	0	457
St. Paul.....	Minneapolis.....	10	1,423	1,252	919	688	420	10	447
Minneapolis.....	St. Vincent.....	379	1,802	1,631	1,298	1,067	799	389	68
St. Vincent.....	Emerson.....	2	1,804	1,633	1,300	1,069	801	391	66
Emerson.....	Winnipeg.....	66	1,870	1,699	1,366	1,135	867	457	0
Winnipeg.....	Portage la Prairie.....	56	1,926	1,755	1,422	1,191	923	513	56
Portage la Prairie.....	Brandon.....	77	2,003	1,832	1,499	1,268	1,000	590	133
Brandon.....	Qu'Appelle.....	191	2,194	2,023	1,690	1,459	1,191	781	324
Qu'Appelle.....	Regina.....	33	2,227	2,056	1,723	1,492	1,224	814	357
Regina.....	Swift Current.....	154	2,381	2,210	1,877	1,646	1,378	968	511
Swift Current.....	Medicine Hat.....	149	2,530	2,359	2,026	1,795	1,527	1,117	660
Medicine Hat.....	Gleichen.....	125	2,655	2,484	2,151	1,920	1,652	1,242	785
Gleichen.....	Galgary.....	54	2,709	2,538	2,205	1,974	1,706	1,266	839
Galgary.....	Canmore.....	67	2,776	2,605	2,272	2,041	1,773	1,363	906
Canmore.....	Silver City.....	32	2,808	2,637	2,304	2,073	1,805	1,395	938
Silver City.....	Stephen, summit of Rocky Mountains.....	24	2,832	2,661	2,328	2,097	1,829	1,419	962
Stephen.....	Savona's Ferry.....	†268	3,100	2,929	2,596	2,365	2,097	1,687	1,230
Savona's Ferry.....	Emory's Bar.....	‡129	3,229	3,058	2,725	2,494	2,226	1,316	1,359
Emory's Bar.....	Port Moody.....	86	3,315	3,144	2,811	2,580	2,312	1,902	1,445

N.B.—† Estimated.—In progress, July, 1884.

‡ Nearly completed do

See table of distances No. 3.

For progress made since July, 1884, see notes at end of these tables.

ROUTES A, B, C,

**No. 17.—COMPARATIVE STATEMENT of Distances in Geographical and Statute Miles
and Inland Ports of Canada, etc., and**

For Details—See Route.	Quebec.		Montreal.		Toronto.		Ottawa.		Winnipeg.		Port Moody Strait of Georgia B.C.
	Geographical Miles.	Statute Miles.	Geographical Miles.	Statute Miles.	Geographical Miles.	Statute Miles.	Geographical Miles.	Statute Miles.	Geographical Miles.	Statute Miles.	Geographical Miles.
.....	2,819	3,249	City. 2,958	City. 3,409	3,247	3,742	3,061	3,529	.....	.....	.....
A 1	2,819	3,249	St. Martin Junction. 2,957	St. Martin Junction. 3,408	.....	.....	3,051	3,516	4,178	4,816	5,432
			City. 2,967	City. 3,420							
A 2	2,661	3,067	St. Martin Junction. 2,799	St. Martin Junction. 3,226	.....	.....	2,893	3,334	4,020	4,634	5,274
			City. 2,809	City. 3,233							
B..	2,819	3,249	St. Martin Junction. 2,957	St. Martin Junction. 3,408	Junction. 3,274	Junction. 3,774	3,051	3,516	4,208	4,850	5,462
			City. 2,967	City. 3,420	City. 3,277	City. 3,778					
C..	2,819	3,249	City. 2,967	City. 3,420	City. 3,256	City. 3,753	.....	.....	4,441	5,119	5,695

N.B.—For routes D, E, F, G, H—See Comparative Statement No. 18.

For details of route A 1 to H—through Canada *via* Port Moody—See Nos. 1 to 25.

For routes I 1 to O—through United States *via* San Francisco—See Nos. 26 to 43.

For summary of routes A 1 to H—through Canada—See No. 19.

For summary of routes I 1 to O—through United States—See No. 43.

SEAPORT OF QUEBEC.

on the various Routes indicated from Liverpool, England, to the principal Seaports Yokohama on the Eastern Coast of Japan.

Victoria, B.C., <i>viâ</i> Nanaimo (Projected Rail- way.)		Yokohama, East Coast of Japan.		Route.
Geographical Miles.	Statute Miles.	Geographical Miles.	Statute Miles.	
.....	.....	.....	.....	Atlantic Ocean <i>viâ</i> Malin Head, North of Ireland, Cape Race, Newfoundland, Gulf and River St. Lawrence, etc. Water route throughout.
5,534	6,379	9,806	11,303	Atlantic <i>viâ</i> Cape Race to Quebec, North Shore and Canadian Pacific Railways to Port Moody, and Pacific Ocean to Yokohama, Japan.
5,376	6,197	9,648	11,121	Atlantic <i>viâ</i> Strait of Belle-Ile. Remainder the same as preceding route. The Cape Race route is 158 geographical miles = 182 statute miles longer than <i>viâ</i> Belle-Ile.
5,564	6,413	9,835	11,337	Atlantic <i>viâ</i> Cape Race to Quebec; thence North Shore and Canadian Pacific Railways <i>viâ</i> Montreal. Ottawa, Perth, Toronto, and Orangeville to Owen Sound; thence across Lake Huron to Sault Ste. Marie Canal; thence across Lake Superior to Port Arthur; thence Canadian Pacific Railway to Winnipeg and Port Moody; thence across Pacific Ocean to Yokohama, Japan. This is the present summer route through Canada. For same route <i>viâ</i> Strait of Belle-Ile, deduct 158 geographical miles = 182 statute miles.
5,797	6,682	10,069	11,606	Atlantic <i>viâ</i> Cape Race, North Shore Railway to Montreal; thence Grand Trunk Railway to Detroit; thence <i>viâ</i> United States Railways to Chicago and Emerson; thence Canadian Pacific Railway to Winnipeg. This was the winter route through Canada and the United States, pending the completion of the Canadian Pacific Railway, north of Lakes Huron and Superior, between Sudbury Junction and Port Arthur, and on the Rocky Mountains, between the summit and Savona's Ferry. On 20th July, 1884, the unfinished portions, then in progress, were estimated at 430 miles north of Lakes Huron and Superior, and at 268 miles on the Rocky Mountains. For progress made since July, 1884, see notes at the end of these tables.

ROUTES D, E, F, G, H, VIA SEAPORTS OF NOVA SCOTIA AND NEW BRUNSWICK.

No. 18.—COMPARATIVE STATEMENT of Distances in Geographical and Statute Miles, on the various Routes indicated, from Liverpool, England, to the principal Seaports and Inland Ports of Canada, and to Yokohama, on the Eastern coast of Japan—Continued.

For Details, See Route.	LOUISBOURG.		HALIFAX.		ST. JOHN.		ST. ANDREW'S.		CHATHAM.		QUEBEC.		MONTREAL.		OTTAWA.		WINNIPEG.		PORT MOODY.		YOKOHAMA.		DESCRIPTION OF ROUTES.
	Geographical Miles.	Statute Miles.	Geographical Miles.	Statute Miles.	Geographical Miles.	Statute Miles.	Geographical Miles.	Statute Miles.	Geographical Miles.	Statute Miles.	Geographical Miles.	Statute Miles.	Geographical Miles.	Statute Miles.	Geographical Miles.	Statute Miles.	Geographical Miles.	Statute Miles.	Geographical Miles.	Statute Miles.	Geographical Miles.	Statute Miles.	
D 1....	2,350	2,709							Junction. 2,697	Junction. 3,109			St. Martin Junction. 3,205	St. Martin Junction. 3,656	3,300	3,804	4,428	5,101	5,631	6,549	10,055	11,691	Louisbourg Route <i>via</i> projected railway about 80 miles long to port Malgrave, Strait of Canso; thence <i>via</i> New Glasgow and Truro, Intercolonial, North Shore and Canadian Pacific Railways.
D 2....	2,350	2,709			2,712	3,126			Town. 2,705	Town. 3,118			City. 3,218	City. 3,708									The distances by this route to Halifax, St. John and St. Andrew's are shown on table of details No. 4.
E 1....			2,500	2,881					Junction. 2,724	Junction. 3,140			St. Martin Junction. 3,234	St. Martin Junction. 3,727	3,327	3,835	4,455	5,135	5,708	6,580	10,083	11,622	Louisbourg Route <i>via</i> Intercolonial R. to St. John, 417 M.; thence <i>via</i> Mattawamkeag, Lake Megantic and Sherbrooke to Montreal, 451 M. by St. John and Maine, International and Grand Trunk Railways. See table No. 5.
E 2....			2,500	2,881	2,739	3,157			Town. 2,732	Town. 3,149			City. 3,244	City. 3,739									For further details, see Halifax Route <i>via</i> St. John, Mattawamkeag and Sherbrooke to Montreal, below.
F 1....					2,700	3,112			Junction. 2,839	Junction. 3,273			St. Martin Junction. 3,349	St. Martin Junction. 3,860	3,442	3,968	4,570	5,168	5,824	6,711	10,198	11,755	Halifax Route <i>via</i> Intercolonial, North Shore, and Canadian Pacific Railways.
F 2....					2,700	3,112			Town. 2,847	Town. 3,282			City. 3,359	City. 3,872									Halifax to St. John, 278 M. by Intercolonial R., and thence 85 M. by Grand Southern Railway to St. Andrew's. For details respecting this route, see table No. 6.
F 3....					2,700	3,112							St. Martin Junction. 3,214	St. Martin Junction. 3,705	3,308	3,813	4,436	5,113	5,490	6,558	10,064	11,600	Halifax Route <i>via</i> Truro and Moncton to St. John by Intercolonial, 276 M.; thence to Mattawamkeag Junction, 147 M. by St. John and Maine Railway; thence to Lake Megantic by Intercolonial Railway projected extension of about 135 M.; thence to Sherbrooke by the latter Railway, 69 M.; thence by Grand Trunk Railway, 101 M. to City of Montreal; thence 2,865 M. to Port Moody.
G 1....							2,680	3,089					City. 3,324	City. 3,717									The distance by this route to Quebec, <i>via</i> Intercolonial Railway to Sherbrooke, and thence by Grand Trunk Railway, is 21 M. greater than to Montreal, or 3,550 M. from Liverpool. See table No. 7.
G 2....							2,680	3,089					City. 3,092	City. 3,584	3,196	3,684	4,324	4,984	5,577	6,429	9,952	11,471	St. John, New Brunswick, Route <i>via</i> Intercolonial R. to Moncton and Quebec; thence <i>via</i> North Shore R. to Montreal; thence by Canadian Pacific Railway to Port Moody. For details respecting this route, see table No. 8.
H....									Town. 2,558	Town. 2,919			St. Martin Junction. 3,087	St. Martin Junction. 3,443	3,081	3,551	4,208	4,851	5,446	6,296	9,836	11,338	St. John, N.B., Route <i>via</i> Fredericton and New Brunswick Railways to Edmundston, 228 M.; thence 80 M. projected railway to Rivière du Loup; thence 126 M. by Intercolonial Railway to Quebec; thence <i>via</i> North Shore Railway, 171 M. to Montreal; thence Canadian Pacific Railway, 2,865 M. to Port Moody. See table No. 9.
													City. 3,036	City. 3,499	3,140	3,619	4,267	4,919	5,571	6,364	9,896	11,406	St. John, N.B., Route <i>via</i> Sherbrooke to Montreal, 452 M. by the St. John and Maine, the International and Grand Trunk Railways—St. John <i>via</i> Sherbrooke to Quebec, 473 M.
													City. 2,987	City. 3,455									St. John to Louisbourg, by Intercolonial Railway, 417 M. See table No. 8.
													City. 2,987	City. 3,455									St. Andrews, New Brunswick Route <i>via</i> Canada and New Brunswick Railways to Woodstock, 94 M.; thence 113 M. to Edmundston; thence to Rivière du Loup, 80 M. by projected Railway; thence 126 M. by Intercolonial R. to Quebec; thence <i>via</i> North Shore R. and C. P. R. to Port Moody, 3,012 M. See table No. 10.
													City. 2,987	City. 3,455									St. Andrew's, N.B., Route <i>via</i> Mattawamkeag and Sherbrooke, 410 M. to Montreal, by St. John and Maine Railway, International and Grand Trunk Railways. See Halifax Route by these lines of Railway, or table No. 11.
													City. 2,987	City. 3,455									St. Andrew's to St. John, by same route <i>via</i> Sherbrooke, 431 M.
													City. 2,987	City. 3,455									St. Andrew's to St. John, by Grand Southern Railway, 85 M.
													City. 2,987	City. 3,455									St. Andrew's to Chatham, by G. Southern and Intercolonial R., 246 M.
													City. 2,987	City. 3,455									Chatham Route, New Brunswick, <i>via</i> Cape Race, 2,849 statute miles from Liverpool, Atlantic Ocean.
													City. 2,987	City. 3,455									Chatham to Edmundston, 185 M., and thence to Quebec, 170 M. <i>via</i> projected "Quebec and Chatham Railway" thence North Shore Railway, 150 miles to St. Martin Junction; thence 2,863 M. to Port Moody, by the Canadian Pacific Railway; thence 5,942 S.M. across Pacific Ocean to Yokohama on East coast of Japan. See table No. 12.
													City. 2,987	City. 3,455									Chatham to St. John, by Intercolonial Railway, 161 M., and thence 85 M. by Grand Southern Railway to St. Andrew's.
													City. 2,987	City. 3,455									For Chatham Route <i>via</i> Strait of Belle-Ile, deduct 158 geographical or 182 statute miles from each of the distances on this route from Liverpool.

N.B.—For Routes A 1, A 2, B and C, see Comparative Statement No. 17.
For Details of Routes A 1 to H, through Canada and Port Moody, see Nos. 1 to 25.
For Routes I 1 to O, through United States *via* San Francisco, see Nos. 26 to 43.
For Summary of Routes A 1 to H, through Canada, see No. 19.
For Summary of Routes I 1 to O, through United States, see No. 43.

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SUMMARY.

No. 19.—Routes A, B, C, D, E, F, G, H.

COMPARATIVE STATEMENT of Distances between Liverpool, England, and Yokohama, Japan, on the respective Routes indicated, through Canada *via* Port Moody.

For Details see	Routes.	Geo- graphical Miles.	Statute Miles.
A 1.....	Quebec, Ottawa and Port Moody <i>via</i> Strait of Belle-Ile.....	9,648	11,121
A 2.....	Quebec, Ottawa and Port Moody <i>via</i> Cape Race.....	9,806	11,303
B.....	Quebec, Ottawa, Owen Sound, Lakes Huron and Superior, and Port Moody <i>via</i> Cape Race.....	9,835	11,337
C.....	Chatham, Quebec, Ottawa and Port Moody <i>via</i> Cape Race.....	9,836	11,333
D 2.....	St. Andrew's, Mattawamkeag, Sherbrooke, Montreal, Ottawa and Port Moody.....	9,895	11,406
E 3.....	St. John, Mattawamkeag, Sherbrooke, Montreal, Ottawa and Port Moody.....	9,952	11,471
F 2.....	Louisbourg, St. John, Mattawamkeag, Sherbrooke, Montreal, Ottawa and Port Moody.....	9,964	11,495
G 2.....	Halifax, St. John, Mattawamkeag, Sherbrooke, Montreal, Ottawa and Port Moody.....	9,991	11,516
H 1.....	St. Andrew's, Edmundston, Rivière du Loup, Quebec, Ottawa and Port Moody.....	10,025	11,556
D 1.....	Louisbourg, Quebec, Montreal, Ottawa and Port Moody.....	10,055	11,591
E 2.....	St. John, Edmundston, Rivière du Loup, Quebec, Ottawa and Port Moody.....	10,064	11,600
F.....	Quebec, Montreal, Toronto, Detroit, Chicago, St. Paul, Emerson, Winnipeg and Port Moody <i>via</i> Cape Race.....	10,065	11,606
G 1.....	Halifax, Quebec, Montreal, Ottawa and Port Moody.....	10,033	11,622
H 1.....	St. John, Moncton, Quebec, Montreal, Ottawa and Port Moody.....	10,198	11,755

N.B.—See Comparative statements, Nos. 17 and 18—Routes through Canada.
 See Summary, No. 43—Routes through the United States *via* San Francisco.
 See Notes at end of tables.

No. 20.—NOTE—ROUTES A 1, A 2.

SUBSIDIES GRANTED

To North Shore Railway from Quebec to Montreal, 159 miles.
Canadian Pacific Railway from Montreal to Ottawa, 120 miles.

Year.	Act.	Nature of Grant and by whom Granted.	Money Subsidies.
1884.		<i>By Federal Government.</i>	\$
April 19	47 Vic., cap 8....	To the Government of the Province of Quebec, in consideration of their having constructed the railway from Quebec to Ottawa, forming a connecting line between the Atlantic and Pacific coasts, <i>via</i> the Intercolonial and Canadian Pacific Railways, and being, as such, a work of national and not merely Provincial utility, a subsidy not exceeding \$6,000 per mile for the portion between Quebec and Montreal, 159 miles, nor exceeding in the whole.....	954,000
		And for the portion between Montreal and Ottawa, 120 miles, \$12,000 per mile, nor exceeding in the whole.....	1,440,000
		For the extension of the Canadian Pacific Railway, from its terminus to St. Martin's Junction near Montreal, or some other point on the Canadian Pacific Railway, to the harbour of Quebec, in such manner as may be approved by the Governor in Council, a subsidy not exceeding \$6,000 per mile, nor exceeding in the whole.....	960,000

N. B.—See tables of distances, &c., Nos. 1, 13.

For cash and land subsidies granted by Federal Government to Canadian Pacific Railway between Ottawa and Port Moody, see No. 13.

See Notes at end of tables.

No. 21.—NOTE—ROUTES D 1, D 2.

SUBSIDIES GRANTED

For the Construction of a Railway from Oxford Station, on the Intercolonial Railway, to Louisbourg or Sydney, in the Province of Nova Scotia.

Year.	Act.	Nature of Grant and by whom Granted.	Money Subsidies.
<i>By Federal Government.</i>			\$
1882.....	45 Vic., cap. 14..	For a railway from Oxford to New Glasgow, both in the Province of Nova Scotia, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole (70 miles)	224,000
1883.....	46 Vic., cap. 25..	The railway from Canso to Louisbourg or Sydney, in the Province of Nova Scotia, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole (80 miles).....	256,000
1884.....	47 Vic., cap. 8...	For the construction of a line of railway from Oxford Station, on the Intercolonial Railway, to Sydney or Louisbourg, a subsidy not exceeding \$30,000 per annum, for fifteen years, or a guarantee of a like sum for a like period as interest on the bonds of the company undertaking the work, in addition to the subsidies previously granted, and also a lease or transfer to such company of the Eastern Extension Railway, from New Glasgow to Canso, with its present equipment ...	450,000
Total			930,000

REMARKS.

The subsidy of \$224,000 is for the construction of a shorter and more direct line, estimated at about 70 miles in length.

The distance from New Glasgow to Port Mulgrave, on Gut of Canso, by the existing railway, is 79½ miles.

The existing railway from Oxford to New Glasgow is 90 miles in length, *viâ* Truro.

The distance from Oxford to Truro, 47 miles, and thence to New Glasgow, 43 miles.

For tables of distances on Louisburg routes, see Nos. 4 and 5.

No. 22.—NOTE—ROUTES F 2, G 1.

SUBSIDY GRANTED

For the Construction of a Railway from Edmundston or Little Falls, New Brunswick, to Intercolonial Railway, at Rivière du Loup, in the Province of Quebec.

Year.	Act.	Nature of Grant and by whom Granted.	Money Subsidy.
		<i>By Federal Government.</i>	\$
1882.....	45 Vic., cap. 14.	For a railway from Rivière du Loup, in the Province of Quebec, to Edmundston, in the Province of New Brunswick, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole (for 75 miles).....	240,000

N.B.—The above subsidy has been granted to the New Brunswick Railway Company. This Company has not yet been fully recognized by Government.

For tables of distances on routes *via* Edmundston, Rivière du Loup and Quebec, see Nos. 8 and 10.

No. 23.—NOTE—ROUTES D 2, E 2, F 3, G 2.

SUBSIDY GRANTED

To the Intercolonial Railway Company, for 49 miles of railway, from Sherbrooke, in the Province of Quebec, to the International Boundary Line.

Year.	Act.	Nature of Grant and by whom Granted.	Money Subsidy.
		<i>By Federal Government.</i>	\$
1883.....	46 Vic., cap. 25.	To the International Railway Company, for 49 miles of their railway, from Sherbrooke, in the Province of Quebec, to the International Boundary Line, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... In connection with the extension of this road through Maine, to connect with New Brunswick, at or near Vanceboro', or south of that point.	156,800

N.B.—For tables of distances on routes *via* International Railway, State of Maine and Canada, see Nos. 5, 7, 9 and 11.

No. 24.—NOTE—ROUTES E 1, E 2, F 2, F 3.

SUBSIDY GRANTED

For the Construction of a line of Railway, connecting Montreal with the Harbours of St. John and Halifax, by the shortest and best practicable route.

Year.	Act	Nature of Grant and by whom Granted.	Money Subsidy.
		<i>By Federal Government.</i>	\$
1884.....	47 Vic, cap. 8...	For the construction of a line of railway, connecting Montreal with the harbours of St John and Halifax, by the shortest and best practicable route, after the report of competent engineers, a subsidy not exceeding \$170,000 per annum for fifteen years, or a guarantee of a like sum for a like period as interest on bonds of the company undertaking the work.	2,550,000

N.B.—For tables of distances on shortest route connecting the harbours of St. John, N.B., and Halifax, N.S, with Montreal, P. Q., see Nos. 6, 7, 8 and 9.

No. 25.—NOTE—EXTENSION OF ROUTES A 1, A 2.

SUBSIDY GRANTED

For the Construction of a Railway and Telegraph Line from Esquimalt to Nanaimo,
on Vancouver Island, British Columbia (about 70 miles)

Year.	Act.	Nature of Grant and by whom Granted.	Money Subsidy.
		<i>By Federal Government.</i>	\$
1884.....	47 Vic., cap. 6...	<p>"The Government of British Columbia shall obtain the authority of the Legislature to convey to the Government of Canada, three and one-half millions of acres of land in the Peace River district of British Columbia, in one rectangular block, east of the Rocky Mountains, and adjoining the North-West Territory of Canada.</p> <p>"The Government of Canada shall, upon the adoption by the Legislature of British Columbia of the terms of this agreement, seek the sanction of Parliament to enable them to contribute to the construction of a railway from Esquimalt to Nanaimo the sum of \$750,000, and they agree to hand over to the contractors who may build such railway, the lands which are or may be placed in their hands for the purpose by British Columbia; and they agree to take security, to the satisfaction of the Government of that Province, for the construction and completion of such railway on or before the 10th day of June, 1887; such construction to commence forthwith."</p> <p>According to agreement, dated 20th Aug., 1883, with contractors, the Federal Government granted to them a subsidy in money of \$750,000 (seven hundred and fifty thousand dollars) and in land, all the land situated on Vancouver Island (except such parts thereof as may have, at any time heretofore, been reserved for naval or military purposes).....</p>	750,000

N.B.—For table of distances, see No. 1.
See Notes at end of these tables.

I 1 TO O.

ROUTES THROUGH THE UNITED STATES

VIA

SAN FRANCISCO.

FOR DETAILS, SEE NOS. 26 TO 43.

FOR SUMMARY OF UNITED STATES ROUTES, SEE No. 43.

FOR ROUTES THROUGH CANADA, *viâ* PORT MOODY,
SEE NOS. 1 TO 25.

FOR SUMMARY OF CANADIAN ROUTES, SEE No. 19.

ROUTE I 1.

Distances from Liverpool, England, to Yokohama, Japan.

No. 26.—PORTLAND, *MONTREAL*, CHICAGO AND SAN FRANCISCO ROUTE.

From	To	Geo- graphical Miles.	Statute Miles.
Liverpool	Portland.....Atlantic Ocean	2,856	3,292
Portland	Montreal ... Grand Trunk Railway	258	297
Montreal	Chicago do	726	837
Chicago	San Francisco. For details, see K 1	2,106	2,428
Total—Portland	San Francisco.....Railway	3,090	3,562
San Francisco	Yokohama .....Pacific Ocean	4,470	5,152
Total—Liverpool....	Yokohama, <i>via</i> Portland, Montreal, Chicago and San Francisco	10,416	12,006

ROUTE I 2.

Distances from Liverpool, England, to Yokohama, Japan.

No. 27.—PORTLAND, *NIAGARA FALLS*, CHICAGO AND SAN FRANCISCO ROUTE.

From	To	Geo- graphical Miles.	Statute Miles.
Liverpool	Portland.....Atlantic Ocean	2,856	3,292
Portland	Boston.....Boston and Maine Railway	101	116
Boston	Chicago....Chicago, Detroit and Niagara Falls Short Line	871	1,004
Chicago	San Francisco. For details, see K 1	2,106	2,428
Total—Portland	San Francisco .....Railway	3,078	3,548
San Francisco	Yokohama.....Pacific Ocean	4,470	5,152
Total—Liverpool....	Yokohama, <i>via</i> Portland, Niagara Falls, Chicago and San Francisco	10,404	11,992

ROUTE J 1.

Distances from Liverpool, England, to Yokohama, Japan.

No. 28.—BOSTON, CHICAGO AND SAN FRANCISCO ROUTE.

From	To	Geo-graphical Miles.	Statute Miles.
Liverpool	Boston.....Atlantic Ocean	2,895	3,337
Boston	Chicago—Chicago, Detroit and Niagara Falls Short Line..	871	1,004
Chicago.....	San Francisco—For details, see K 1.....	2,106	2,428
Total—Boston	San Francisco.....Railway	3,977	3,432
San Francisco	Yokohama .....Pacific Ocean	4,470	5,152
Total—Liverpool....	Yokohama, <i>viâ</i> Boston, Chicago and San Francisco	10,342	11,921

ROUTE J 2.

Distances from Liverpool, England, to Yokohama, Japan.

No. 29.—BOSTON, ST. LOUIS AND SAN FRANCISCO ROUTE.

From	To	Geo-graphical Miles.	Statute Miles.
Liverpool	Boston.....Atlantic Ocean	2,895	3,337
Boston	New York—New York, New Haven and Hartford Railway	203	234
New York	Philadelphia .....Pennsylvania Railway	78	90
Philadelphia.....	St. Louis—Cincinnati, Washington and Baltimore Railway	883	1,018
St. Louis	San Francisco.....St. Louis and San Francisco Railway	2,112	2,435
Total—Boston	San Francisco .....Railway	3,276	3,777
San Francisco.....	Yokohama.....Pacific Ocean	4,470	5,152
Total—Liverpool	Yokohama, <i>viâ</i> Boston, St. Louis and San Francisco	10,641	12,266

ROUTE K 1.

Distances from Liverpool, England, to Yokohama, Japan.

No. 30.—NEW YORK, CHICAGO AND SAN FRANCISCO ROUTE.

From	To	Geo- graphical Miles.	Statute Miles.
Liverpool	New York.....Atlantic Ocean	3,694	3,567
New York	Chicago.....Chicago, Detroit and Niagara Falls short line	823	948
Chicago.....	Omaha.....Chicago, Rock Island and Pacific Railway	434	500
Omaha.....	Ogden.....Union Pacific Railway	896	1,033
Ogden.....	San Francisco.....Central Pacific Railway	776	895
Total—New York.	San Francisco.....Railway	2,929	3,376
San Francisco	Yokohama .....Pacific Ocean	4,470	5,152
Total—Liverpool..	Yokohama <i>via</i> New York, Chicago and San Francisco.	10,493	12,095

ROUTE K 2.

Distances from Liverpool, England, to Yokohama, Japan.

No. 31.—NEW YORK, CINCINNATI, ST. LOUIS AND SAN FRANCISCO ROUTE.

From	To	Geo- graphical Miles.	Statute Miles.
Liverpool.....	New York.....Atlantic Ocean.	3,094	3,567
New York	St. Louis...Cincinnati, Washington and Baltimore Railway	961	1,108
St. Louis.....	San Francisco.....St. Louis and San Francisco Railway	2,112	2,435
Total—New York.	San Francisco.....Railway	3,073	3,543
San Francisco..	Yokohama .....Pacific Ocean	4,470	5,152
Total—Liverpool..	Yokohama <i>via</i> New York, Cincinnati, St. Louis and San Francisco.....	10,637	12,262

ROUTE K 3.

Distances from Liverpool, England, to Yokohama, Japan.

No. 32.—NEW YORK, INDIANAPOLIS, ST. LOUIS AND SAN FRANCISCO ROUTE

From	To	Geo-graphical Miles.	Statute Miles.
Liverpool.....	New York.....Atlantic Ocean	3,094	3,567
New York.....	St. Louis— <i>via</i> Vandalia Line :— New York, Philadelphia, Washington, Baltimore, Indianapolis and St. Louis Railway	924	1,061
St. Louis.....	San Francisco.....St. Louis and San Francisco Railway.	2,112	2,431
Total—New York....	San Francisco.....Railway.	3,036	3,507
San Francisco	Yokohama .....Pacific Ocean.	4,470	5,157
Total—Liverpool....	Yokohama <i>via</i> New York, Indianapolis, St. Louis and San Francisco	10,600	12,215

ROUTE L 1.

Distances from Liverpool, England, to Yokohama, Japan.

No. 33.—PHILADELPHIA, CHICAGO AND SAN FRANCISCO ROUTE.

From	To	Geo-graphical Miles.	Statute Miles.
Liverpool	Philadelphia.....Atlantic Ocean.	3,275	3,771
Philadelphia.....	Bethlehem Junction.....Philadelphia and Reading Railway	49	56
Bethlehem Junction .	Chicago....Chicago, Detroit and Niagara Falls Short Line.	783	906
Chicago	San Francisco .....See Route K 1.	2,106	2,427
Total—Philadelphia	San Francisco.....Railway.	2,938	3,384
San Francisco.....	Yokohama.....Pacific Ocean.	4,470	5,157
Total—Liverpool ...	Yokohama <i>via</i> Philadelphia, Chicago and San Francisco....	10,683	12,318

ROUTE L 2.

Distances from Liverpool, England, to Yokohama, Japan.

No. 34.—PHILADELPHIA, *CINCINNATI*, ST. LOUIS AND SAN FRANCISCO ROUTE.

From	To	Geo-graphical Miles.	Statute Miles.
Liverpool.....	Philadelphia..... Atlantic Ocean	3,275	3,775
Philadelphia.....	St. Louis... Cincinnati, Washington and Baltimore Railway	883	1,018
St. Louis.....	San Francisco..... St. Louis and San Francisco Railway	2,112	2,435
Total—Philadelphia.	San Francisco..... Railway	2,995	3,453
San Francisco.....	Yokohama..... Pacific Ocean	4,470	5,152
Total—Liverpool....	Yokohama, <i>via</i> Philadelphia, Cincinnati, St. Louis and San Francisco.....	10,740	12,380

ROUTE L 3.

Distances from Liverpool, England, to Yokohama, Japan.

No. 35.—PHILADELPHIA, *INDIANAPOLIS*, ST. LOUIS AND SAN FRANCISCO ROUTE.

From	To	Geo-graphical Miles.	Statute Miles.
Liverpool.....	Philadelphia..... Atlantic Ocean	3,275	3,775
Philadelphia.....	St. Louis—Vandalia Line :—New York, Philadelphia, Washington, Baltimore, Indianapolis and St. Louis Railway.	846	975
St. Louis.....	San Francisco..... St. Louis and San Francisco Railway.	2,112	2,435
Total—Philadelphia.	San Francisco..... Railway	2,958	3,410
San Francisco.....	Yokohama..... Pacific Ocean	4,470	5,152
Total—Liverpool....	Yokohama, <i>via</i> Philadelphia, Indianapolis, St. Louis and San Francisco.....	10,703	12,337

ROUTE M 1.

Distances from Liverpool, England, to Yokohama, Japan.

No. 36.—BALTIMORE, CHICAGO AND SAN FRANCISCO ROUTE.

From	To	Geo- graphical Miles.	Statute Miles.
Liverpool.....	Baltimore.....Atlantic Ocean	3,450	3,977
Baltimore.....	Chicago.....Baltimore and Ohio Railway	740	853
Chicago.....	San Francisco.....See Route K 1	2,106	2,428
Total—Baltimore....	San Francisco.....Railway	2,846	3,281
San Francisco	Yokohama.....Pacific Ocean	4,470	5,152
Total—Liverpool ...	Yokohama <i>via</i> Baltimore, Chicago and San Francisco.....	10,766	12,410

ROUTE M 2.

Distances from Liverpool, England, to Yokohama, Japan.

No. 37.—BALTIMORE, CINCINNATI, ST. LOUIS AND SAN FRANCISCO ROUTE.

From	To	Geo- graphical Miles.	Statute Miles.
Liverpool.....	Baltimore.....Atlantic Ocean	3,450	3,977
Baltimore.....	St. Louis.....Cincinnati, Washington and Baltimore Ry..	798	927
St. Louis	San Francisco.....St. Louis and San Francisco Railway..	2,112	2,433
Total—Baltimore ...	San Francisco.....Railway	2,910	3,333
San Francisco	Yokohama	4,470	5,152
Total—Liverpool ...	Yokohama <i>via</i> Baltimore, Cincinnati, St. Louis and San Francisco.....	10,830	12,462

ROUTE M 3.

Distances from Liverpool, England, to Yokohama, Japan.

No. 38.—BALTIMORE, *INDIANAPOLIS*, ST. LOUIS AND SAN FRANCISCO ROUTE.

From	To	Geo-graphical Miles.	Statute Miles.
Liverpool.....	Baltimore..... Atlantic Ocean	3,450	3,977
Baltimore.....	St Louis— <i>Vandalia Line</i> :—		
Baltimore.....	Harrisburg Junction..... Northern Central Railway	74	85
Harrisburg Junct'n	St. Louis... New York, Philadelphia, Washington, Baltimore, Indianapolis and St. Louis Railway	755	870
St. Louis	San Francisco..... St. Louis and San Francisco Railway	2,112	2,435
Total—Baltimore.....	San Francisco	2,941	3,390
San Francisco	Yokohama	4,470	5,152
Total—Liverpool	Yokohama, <i>via</i> Baltimore, Indianapolis, St. Louis and San Francisco	10,861	12,519

ROUTE N 1.

Distances from Liverpool, England, to Yokohama, Japan.

No. 39.—RICHMOND, *LOUISVILLE*, ST. LOUIS AND SAN FRANCISCO ROUTE.

From	To	Geo-graphical Miles.	Statute Miles.
Liverpool	Richmond..... Atlantic Ocean	3,380	3,895
Richmond.....	Huntingdon		
Huntingdon	Lexington	364	419
Lexington	Louisville.....	121	139
Louisville.....	Mount Vernon... Louisville and Nashville Railway	82	94
Mount Vernon.....	St. Louis..... Louisville, Evansville and St. Louis Railway	162	187
St. Louis.....	San Francisco..... St. Louis and San Francisco Railway	66	76
Total—Richmond....	San Francisco..... Railway	2,112	2,435
San Francisco	Yokohama..... Pacific Ocean	2,907	3,350
Total—Liverpool	Yokohama, <i>via</i> Richmond, Louisville, St. Louis and San Francisco	4,470	5,152
		10,757	12,397

ROUTE N 2.

Distances from Liverpool, England, to Yokohama, Japan.

No. 40.—RICHMOND, *CINCINNATI*, ST. LOUIS AND SAN FRANCISCO ROUTE.

From	To	Geo- graphical Miles.	Statute Miles.
Liverpool.....	Richmond..... Atlantic Ocean	3,380	3,895
Richmond	Washington...Richmond, Fredericksburgh and Potomac Ry	101	116
Washington	St. Louis <i>Cincinnati</i> , Washington and Baltimore Ry	763	880
St. Louis	San Francisco..... St. Louis and San Francisco Railway	2,112	2,435
Total—Richmond ...	San Francisco..... Railway	2,976	3,431
San Francisco	Yokohama..... Pacific Ocean	4,470	5,152
Total—Liverpool....	Yokohama, <i>viâ</i> Richmond, <i>Cincinnati</i> , St. Louis and San Francisco	10,826	12,478

ROUTE N 3.

Distances from Liverpool, England, to Yokohama, Japan.

No. 41.—RICHMOND, NEW ORLEANS AND SAN FRANCISCO ROUTE.

From	To	Geo- graphical Miles.	Statute Miles.
Liverpool.....	Richmond..... Atlantic Ocean	3,380	3,895
Richmond	Atlanta Richmond and Danville Railway	476	549
Atlanta	Montgomery Western Railway of Alabama	153	175
Montgomery.....	New Orleans..... Louisville and Nashville Railway	278	321
New Orleans.....	El Paso...Galveston, Harrisburg and San Antonio Railway System.....	1,049	1,209
El Paso	Tulare..... Southern Pacific Railway	832	947
Tulare	San Francisco Central Pacific Railway	218	251
Total—Richmond ...	San Francisco..... Railway	2,995	3,452
San Francisco	Yokohama..... Pacific Ocean	4,470	5,152
Total—Liverpool....	Yokohama, <i>viâ</i> Richmond, New Orleans and San Francisco	10,845	12,499

ROUTE O.

Distances from Liverpool, England, to Yokohama, Japan.
No. 42.—NEW ORLEANS AND SAN FRANCISCO ROUTE.

From.	To	Geo-graphical Miles.	Statute Miles.
Liverpool.....	New Orleans.....Atlantic Ocean	4,780	5,510
New Orleans.....	El Paso.....Galveston, Harrisburg and San Antonio Rail-way System.....	1,049	1,209
El Paso.....	Tulare.....Southern Pacific Railway	822	947
Tulare.....	San Francisco.....Central Pacific Railway	218	251
Total—New Orleans.	San Francisco Railway	2,089	2,407
San Francisco.....	Yokohama.....Pacific Ocean	4,470	5,152
Total—Liverpool	Yokohama, <i>via</i> New Orleans and San Francisco.....	11,339	13,069

SUMMARY.

No. 43.—Routes I 1 to O—BOTH INCLUSIVE.

COMPARATIVE STATEMENT of Distances between Liverpool, England, and Yokohama, Japan, on the respective Routes indicated, through the United States, *via* San Francisco.

For Details See	Routes	Geo- graphical Miles.	Statute Miles.
J. 1.....	Boston, Chicago and San Francisco.....	10,342	11,921
I. 2.....	Portland, Niagara Falls, Chicago and San Francisco.....	10,404	11,992
I. 1.....	Portland, Montreal, Chicago and San Francisco.....	10,416	12,006
K. 1.....	New York, Chicago and San Francisco.....	10,493	12,095
K. 3.....	New York, Indianapolis, St. Louis and San Francisco.....	10,600	12,219
K. 2.....	New York, Cincinnati, St. Louis and San Francisco.....	10,637	12,262
J. 2.....	Boston, St. Louis and San Francisco.....	10,641	12,266
L. 1.....	Philadelphia, Chicago and San Francisco.....	10,683	12,314
L. 3.....	Philadelphia, Indianapolis, St. Louis and San Francisco.....	10,703	12,337
L. 2.....	Philadelphia, Cincinnati, St. Louis and San Francisco.....	10,740	12,380
N. 1.....	Richmond, Louisville, St. Louis and San Francisco.....	10,757	12,397
M. 1.....	Baltimore, Chicago and San Francisco.....	10,766	12,410
N. 2.....	Richmond, Cincinnati, St. Louis and San Francisco.....	10,826	12,478
M. 2.....	Baltimore, Cincinnati, St. Louis and San Francisco.....	10,830	12,484
N. 3.....	Richmond, New Orleans and San Francisco.....	10,845	12,499
M. 3.....	Baltimore, Indianapolis, St. Louis and San Francisco.....	10,861	12,519
O.....	New Orleans and San Francisco.....	11,339	13,069

N.B.—See Summary No. 19.—Routes through Canada, *via* Port Moody.

CANADIAN PACIFIC RAILWAY.

Since the publication of the last Annual Report for 1883-84, the unfinished portions of the railway, were completed sufficiently for the passage of through passenger trains from Quebec to Winnipeg on the 2nd November, 1885, and to Port Moody on the 7th of the same month, the last spike having been driven that day, east of Kamloops, and a special train having then passed through to Port Moody.

The portions above referred to, are :—

	Mileage Estimated, 1884.	Mileage Measured, 1885.
North of Lake Superior—		
Between Sudbury Junction and Port Arthur.....	430	435
Rocky Mountains—		
Between Stephen, or summit of Rocky Mountains, and Savona Ferry, Kamloops.....	268	288
Total—Unfinished portions completed, or nearly so, in 1885.....	698	723

The preceding figures show a total difference of 25 miles, from which 2 should be deducted for the portion of railway between Savona Ferry and Port Moody, which is now reported to be 213 instead of 215 miles in length.

The total difference of mileage, therefore, to be added to the length of the Canadian Pacific Railway, and consequently to the total distances from Liverpool, England, to Yokohama, Japan, in the tables of distances published in the Report for 1883-84, is 23 miles.

TRANSFER OF THE NORTH SHORE RAILWAY—QUEBEC TO MONTREAL.

The Eastern Section of the North Shore Railway, between Quebec and Montreal, was transferred by the North Shore Railway Company, or Syndicate, to the Grand Trunk Railway Company, for the purpose of being operated by the latter, according to an agreement dated 27th February, 1883; it was afterwards placed under their control and in their possession by a subsequent agreement dated 20th April, 1883.

The Grand Trunk Railway Company transferred their rights on the aforesaid railway to the Federal Government, on the 19th September, 1885, under the authority of an Order in Council, according to the 2nd and 3rd sections of the Act 48 Vic., Chap. 58, of 1885.

The Federal Government transferred the same railway to the Canadian Pacific Railway Company, on the same day, 19th September, 1885, under another Order in Council, in accordance with the provisions of the 3rd section of the above cited Act, which grants a subsidy, with the subsidies theretofore granted, amounting to \$1,500,000, as an aid towards procuring free access, by the Canadian Pacific Railway Company, to the Harbour of Quebec.

In pursuance of their agreement with the Grand Trunk Railway Company, the Federal Government are to pay them, out of the above sum, under certain conditions, the sum of \$525,000. They are also to pay them the value of all fuel purchased by the Grand Trunk Railway Company expressly for the use of the North Shore Railway, for the autumn and winter of 1885-86. They are moreover to assume or cause the parties responsible therefor, to assume the liabilities of the North Shore Railway Company, with respect to the following claims :—

For the Palais Harbour property at Quebec.....	\$45,000
For land at Quebec, due to Robert H. McGreevy.....	15,000
For land in Hochelaga, due to H. Robert, and payable in 1888.....	22,500

The Federal Government, according to their agreement with the Canadian Pacific Railway Company, are to apply the interest on the sum of \$970,000 out of the \$1,500,000, at the rate of four per cent. per annum, in whole or in part, as may be required, towards the payment of the interest on the first mortgage bonds of the North Shore Railway Company, including those held by the Government of Quebec, as collateral security for the balance of the price of the said railway; the payment of such interest, by the Federal Government, to be made only in the event of the net receipts of the operation of the railway, after paying the operating expenses thereof, proving insufficient to meet the interest; but when the net receipts of the said railway shall be sufficient to pay the interest on the said bonds, the Canadian Pacific Railway Company shall cease to have any further claim or demand upon the Federal Government, in respect of the above \$970,000.

APPENDIX No. 27.

National Art Gallery.

CURATOR'S REPORT.

APPENDIX No. 27.

NATIONAL ART GALLERY.—CURATOR'S REPORT.

Ref. No. 62,973.

NATIONAL ART GALLERY,
OTTAWA, 10th November, 1885.

SIR,—I have the honour to report the following additions to the National Art Gallery, received during the fiscal year ended 30th June, 1885.

A series of drawings, paintings, &c., 39 in number, by students of the South Kensington (England) School of Art; showing the system adopted in the various branches of Art as taught by the Government Schools in England.

The above studies were presented through H.R.H. the Princess Louise.

OIL PAINTINGS.

"Portrait of the Marquis of Lorne,"—by Sir J. E. Millais, R.A. Presented by Sir J. E. Millais, R.A., through the Marquis of Lorne.

"Dolly at the Sabot Maker's Shop"—by Wm. Brymner, Esq., A.R.C.A. Purchased by the Government.

"Water Color"—by C. S. Millard, Esq., R.C.A. Presented by C. S. Millard through the Royal Canadian Academy.

The above making a total of ninety-three works of Art now in the Gallery.

During the fiscal year the interest in the Gallery has been maintained; 11,893 visitors have registered their names, showing an increased attendance of 1,965 as compared with last year.

I have the honour to be, Sir,

Your obedient servant,

JOHN W. H. WATTS,

Curator.

A. GOBEL, Esq.,

Secretary, Department of Public Works.

APPENDIX No. 28.

STATEMENT

OF CASES REFERRED TO THE

OFFICIAL ARBITRATORS,

DURING THE FISCAL YEAR ENDED 30TH JUNE, 1885.

BY

CHARLES THIBAUT, SECRETARY.

THE
TECHNICAL

KNOWLEDGE OF THE

ARTS AND MANUFACTURES

OF THE

APPENDIX No. 28.

REPORT OF THE SECRETARY TO THE OFFICIAL ARBITRATORS.

Ref. No. 60,587.

OFFICIAL ARBITRATORS, CANADA,
OTTAWA, 16th July, 1885.

SIR.—I beg to enclose you herewith a statement of the claims referred to and arbitrated upon by the Official Arbitrators, in connection with the Department of Public Works, during the fiscal year ended 30th June, 1885.

I am, Sir,

Your obedient servant,

CHAS. THIBAUT,

Secretary to the Official Arbitrators.

A. GOBEIL, Esq.,
Secretary, Department of Public Works.

STATEMENT of Claims referred to and arbitrated or reported upon by the Official Arbitrators, in connection with the Department of Public Works, during the Fiscal Year ended 30th June, 1885.

Claimant.	Nature of Claim.	When Referred.	To whom Referred.	Whether Referred for Award or Report.	Amount Claimed.	Amount Rewarded or Recommended.	Date of Award or Report.	Remarks.
C. O. Charlton.	Campbell's Cove, P.E.I. Damage by erection of a Breakwater..	1884. Aug. 22 ...	Full Board..	For award...	\$ cts. 250 00	\$ cts. .....	.....	N.B.—In this case Mr. Muma made a report, recommending to pay claimant \$112.50, but Department did not consent and ordered the case to be awarded on, according to reference.

APPENDIX No. 29

LIST OF OFFICERS OF THE DEPARTMENT.

APPENDIX

Ref. No. 63,650.

List of the Members, Commissioners and Assistant Commissioners of the Board
Chief Architects of the Department

Chairman, Commissioners and Ministers.				Assistant Commissioners and Deputy Ministers.	
Names.		From	To	Names.	Date of Appointment
<i>Under Statute 4-5 Vic., Cap. 38, Corporation of Board of Works.</i>					
Hon. H. H. Killaly, Chairman.....					
D. Daly	} Members...	Dec. 29, 1841	Oct. 3, 1844		
S. B. Harrison.....					
J. Davidson, Esq....					
<i>New Board of Works.</i>					
Hon. H. H. Killaly, Chairman.....					
D. Daly.....	} Members...	Oct. 5, 1844	June 8, 1846		
W. H. Draper....					
W. Morris					
D. B. Papineau..					
<i>Under Statute 9 Vic., Cap. 37, etc.</i>					
Hon. W. B. Robinson, Chief Commissioner...		July 4, 1846	Mar. 10, 1848	Hon. Chas. Eus. Casgrain, Assist. Commissioner..	Aug. 1, 18
E. P. Taché	do ...	Mar. 11, 1848	Nov. 26, 1849	Hon. M. Cameron, Asst. Commissioner	Mar. 11, 18
J. Chabot	do ...	Dec. 15, 1849	Mar. 31, 1850	Jno. Wetenhall, Asst. Commissioner.	Feb. 2, 18
W. H. Merritt	do ...	April 20, 1850	Feb. 11, 1851	Hon. Jos. Bourret, Asst. Commissioner	April 20, 18
J. Bourret	do ...	Feb. 15, 1851	Oct. 27, 1851	Hon. H. H. Killaly, Asst. Commissioner	Feb. 15, 18
John Young	do ...	Oct. 28, 1851	Sept. 22, 1852		
J. Chabot	do ...	Sept. 23, 1852	Jan. 26, 1855		
F. Lemieux	do ...	Jan. 27, 1855	Nov. 25, 1857		
C. Alleyn	do ...	Nov. 28, 1857	Aug. 1, 1858		
L. H. Holton	do ...	Aug. 2, 1858	do 6, 1858		
L. V. Sicotte	do ...	do 6, 1858	Jan. 10, 1859	Samuel Keefer, Asst Commissioner.	May 6, 18
John Rose	do ...	Jan. 15, 1859	June 12, 1861		
Jos. Cauchon, Commissioner.		June 15, 1861	May 23, 1862		
U. J. Tessier	do ...	May 24, 1862	do 27, 1863		
L. T. Drummond	do ...	do 28, 1863	July 23, 1863		
M. Laframboise	do ...	July 23, 1863	Mar. 29, 1864	Toussaint Trudeau, Asst. Commissioner	Mar. 15, 18
J. C. Chapais	do ...	Mar. 30, 1864	June 30, 1867		
<i>Under Statute 31 Vic, Cap. 12.</i>					
Hon. Wm. McDougall, Minister.....		July 1, 1867	Oct. —, 1869	Toussaint Trudeau, Deputy Minister.	May —, 18
Hon. H. L. Langevin, C.B., Minister		Dec. 8, 1869	Nov. 5, 1873		
Hon. Alexander Mackenzie do		Nov. 7, 1873	Oct. 16, 1878		
Sir Chas. Tupper, C.B., K.C.M.G., Minister		Oct. 17, 1878	May 20, 1879		
Sir Hector L. Langevin, C.B., K.C.M.G., Minister.....		May 20, 1879		G. F. Baillairgé, Deputy Minister.	Oct. 4, 18

No. 20.

of Works, and of the Ministers, Deputy Ministers, Secretaries, Chief Engineers and of Public Works, from 1841 to 1885.

Secretaries.		Chief Engineers.		Chief Architects.	
Names.	Date of Appointment.	Names.	Date of Appointment.	Names.	Date of Appointment.
Thomas A. Begly..	Aug. 17, 1841	Samuel Keefer	Aug. 17, 1841	F. P. Rubidge, Architect and Asst. Engineer	Dec. 15, 1841.
Thomas A. Begly, under Act estab- lishing Dept. of Public Works.	Sept. 25, 1847				
.....	.....	John Page.....	Oct. 31, 1853		
Toussaint Trudeau	Dec. 13, 1859				
Frederick Braun ...	Mar. 8, 1864				
.....	.....	G. F. Baillairgé, Asst. Chief En- gineer.	July 5, 1871	Thos. S. Scott...	Feb. 7, 1872.
{ S. Chapleau F. H. Ennis..... A. Gobeil.....	Oct. 4, 1879 Nov. 4, 1880 Jan. 23, 1885	H. F. Perley	Nov. 25, 1880	Thos. Fuller.....	Oct. 31, 1881.

APPENDIX No. 29.

SUPPLEMENTAL REPORT

ON

TELEGRAPH LINES

IN THE

NORTH-WEST,

BY

F. N. GISBORNE, Superintendent.

APPENDIX No. 29.

SUPPLEMENTAL REPORT ON TELEGRAPH LINES IN NORTH-WEST TERRITORIES.

GOVERNMENT TELEGRAPH SERVICE,
OFFICE OF THE GENERAL SUPERINTENDENT,
OTTAWA, 28th December, 1885.

SIR,—As an Appendix to my report on the Government Telegraph Service for the year ended 30th June, 1885, I beg leave to enclose to you herewith a report made by the District Superintendent of the North-West Telegraph Lines, under date, Battleford, 9th instant, with reference to the projected re-construction of the line between Battleford and Edmonton, the route to be traversed, &c., with a supplementary report from the telegraph agent at Edmonton concerning the nature of the country in the vicinity of Fort Saskatchewan.

I have the honour to be, Sir,
Your obedient servant,

F. N. GISBORNE,
Superintendent.

A. GOBEL, Esq.,
Secretary Public Works.

BATTLEFORD, 9th December, 1885.

DEAR SIR,—I have the honour to make the following report on my trip to Edmonton and back.

On the 12th October, 1885, I left Wyld and Burke's ranch, on the north side of the River Saskatchewan (Wyld and Burke's ranch is exactly opposite the village of Battleford, being 100 chains north of my office), with Pat Maskell, driving the horses you had in the spring, and myself riding one of my grey mares, the other having been injured in the summer by prairie fires.

My object in driving to Pitt on the north side of the river, was to see if the Indian Department and Hudson Bay Company were not mistaken in recommending you to build the line on the north side instead of the south side.

The north side is 7.7 miles longer than the south side, and has the following rivers to cross: Jack Fish Creek (15.5), Turtle River (46.1), English River (63.6), Red Deer River (86.5). All these streams are as large or larger than Eagle Creek, and would necessitate swimming the repairers' horses for a month in the year, and sometimes would be impossible to cross.

There are no tamarac or Balksian pine, or even poplar, to be seen, until quite close to Pitt, and in every way the northern is a much inferior route to the south side.

From Fort Pitt the trail shows very little or no pines, until close to Frog Lake (32 miles), where there are some jack and balsam pines, both woods being of small growth, are little, if any, better than poplar, for poles. Even here the quantity is limited, the chief wood being poplar, of a poor class.

At Moose Hill Creek there are a few balsam pines. This creek is bridged. It is a large stream. About 42 miles west of Pitt.

Dog Rump Creek, 64 miles west of Pitt, is a very large stream; has a good crossing, but sure to cause trouble in the spring. A few balsam pines are to be seen in this neighbourhood.

Saddle Lake Creek is a large stream, larger than Eagle Creek, 94 miles west of Pitt. The trail crosses this creek in the centre of a large Indian settlement. I should certainly recommend that when the new line is built that the station for a repairer or sub-agent be in this neighbourhood. It is the only settled place between Frog Lake and Victoria. Three miles west of the creek, and on the south side of the trail, is a tamarac swamp. The only trouble is, it belongs to the Indians. I recommend that you make arrangements with the Commissioner at Regina for the Indians to contract for delivering poles, say from Victoria to 30 miles east of Saddle Lake Creek.

Three miles east of Victoria you go through jack pine woods, and for nearly two miles most of the pine woods are small—not large enough for poles.

Victoria consists of an old Hudson Bay Company fort, now used as an Indian Agent's office, one small trader and half-a-dozen to a dozen small farmers, chiefly half-breeds. The post is close to the banks of the river.

From Pitt to Victoria I saw no tamarac or Balsian pine, except where mentioned, the chief wood being a scrub poplar, and that limited, and a few jack and balsam pines scattered through them. The balsam pines grow to be fine trees, but the jack pines are nearly always too small for poles. In fact, however, both woods are unsuitable for telegraph poles as they are within four years. Without doubt metal poles at trouble first cost will be vastly more economical than even the best of timber, as they would be safe from prairie fires which annually destroy many miles of line, thereby adding greatly to the cost of maintenance and materially decreasing revenue returns.

From Victoria until you get to Sturgeon River there are no settlers. From there to Edmonton is more or less settled.

Mr. Macrae, late Indian Agent at Carlton, and for a number of years resident at Edmonton, and who has travelled over the route a hundred times between Victoria and Edmonton, says that the brooks marked on the Government map are nearly as deep in the spring that it is necessary to swim horses, and some of them being impassable for a number of days. Such being the case it is doubtful whether it is advisable to adopt the route on the north side, but instead to adopt the route on the south side, as marked on map attached, crossing the Saskatchewan River at Edmonton and Victoria, or Fort Saskatchewan and Victoria.

I attach Mr. Taylor's report on the south side of the river, also a table of distances.

There will be no trouble to get suitable poles between Victoria and Fort Saskatchewan, but from there to Edmonton they will have to be hauled a long way.

I reached Edmonton on the 22nd October, having been ten days on the journey. My horses being very poor and played out—I refer to the bronchos, not to my grey mare. I waited over at Edmonton until the 27th October. In the mean time I drove to St. Albert, and reopened the St. Albert telephone office, which had been closed over two months, on account of nobody being willing to do the work on the former terms. The office is now in the Roman Catholic Mission building, and is under the charge of Father L'Estrang, all accounts, &c., being kept by Mr. Taylor at Edmonton—the Rev. Father receiving the usual 25 per cent. commission, as hitherto.

On the 27th October I drove towards Battleford *via* Hay Lakes and the telegraph line. It is a great pity the line had not originally been built from Edmonton to Hay Lakes, as shown on the map, which is a passable route.

The line has been much destroyed by prairie fires, and I much doubt if it will be practicable to give Edmonton an even passable service next spring.

Snow having fallen, it took us until the 6th November, 1885, to reach Battleford, both horses and men thoroughly worn out.

I am Sir,

Your obedient servant,

HARTLEY GISBORNE,

District Superintendent.

F. N. GISBORNE, Esq., F.R.S.C.,

Superintendent Government Telegraph Service,
Ottawa.

EDMONTON, ALTA., 16th November, 1885.

SIR,—Following your instructions, I furnish you the following information re the country lying between Fort Saskatchewan and Victoria, on the south side of the Saskatchewan River.

At Fort Saskatchewan a creek 20 feet wide empties into the river, and is bridged at those places. From this to Deep Creek the country is very much cut up by swamps, and almost all of the prairie is covered with a growth of poplar and cottonwood. The swamps contain tamarac, in small quantities, and red and white pine in plenty. The creek is insignificant, and can be bridged for, say \$25. From this creek to Beaver Creek the country is much the same in character, but contains fewer swamps. The principal wood is white poplar, with little, if any, pine along the trail, but back from it, on either side, more especially in the Beaver Hills, which are here skirted by the trail, there is a great deal, but scattered. The country from Beaver to Straw Creek is open, and much dryer, with timber at greater distances, but still plentiful. Both of these creeks can be bridged for, say \$50 each. No other streams are encountered between Straw Creek and Victoria, and the country is open, with few swamps. Timber suitable for telegraph construction is scarcer, and would have to be hauled long distances, say up to 18 miles. The whole district can be easily travelled over at any season, as there are only the three streams mentioned above. All authorities agree in saying that timber for the purpose of telegraph line construction can be had with a maximum haul of 18 miles, and that distance in not more than two places. The difference in distance between Fort Saskatchewan and Victoria is about 15 miles in favor of the south side of the Saskatchewan.

I have the honor to be, Sir,

Your obedient servant,

ALEX. TAYLOR,

Agent Government Telegraph Service.

H GISBORNE, Esq.,

Battleford, N.W.T.

TABLE OF DISTANCES.

CARLETON (North side of Saskatchewan River).....	0·0	BATTLEFORD.....	0
Eastern edge of the Great Swamp	18·0	South side trail forks.....	36·8
Large lake north of trail.....	23·8	Big Gully Creek.....	57·1
“ south “	28·5	Quaking Bog	67·6
Shanty close to brook of good water.....	30·3	Small Creek.....	78·8
Small brook	43·7	Saskatchewan River.....	92·5
Small pond some distance north..	53·4	Fort Pitt.....	93·0
Eastern edge of “ Goose Lake,” a large marshy lake south of trail	60·2	BATTLEFORD TO FORT PITT by a line surveyed for telegraph line....	0
Large lake south of trail.....	67·9	Stony Creek.....	37·0
Wyld & Burke's house, exactly north of Battleford, on the Saskatchewan River. The river, including the island, is 83 chains wide.....	86·8	Commencement of sand hills....	44·0
		Big Gully Creek.....	54·0
		Fort Pitt.....	88·9
CARLTON TO BATTLEFORD, by the south side of the Saskatchewan River (District Superintendent's office)	113	FORT PITT TO VICTORIA.....	0
		Two Big Hills.....	17·2
BATTLEFORD (Wyld's & Burke's farm house), north side Saskatchewan River.....	0	Lac la Biche trail turns off.....	47·5
Junction with Pitt and Carlton trail.....	10·2	Dog Rump Creek.....	64·0
Jack Fish Creek.....	15·5	Saddle Lake Creek.....	94·0
Trail to Moosomin's Reserve....	18·1	Sandy Creek—Lac la Biche trail turns off.....	114·0
First water and feed since Jack Fish Creek.....	24·8	Mill Creek or Smoking Creek....	126·0
Large lake.....	30·5	Victoria.....	129·0
To Turtle River crossing	46·1		
English River (a few balsam pines).....	63·6	VICTORIA TO EDMONTON.....	
Creek joining two large lakes together.....	83·8	Stony Creek.....	16·0
Red Deer River.....	86·5	Sucker Creek... ..	22·0
Small brook at bottom of deep ravine.....	99·6	Sturgeon River.....	50·0
Fort Pitt.....	100·7	Fort Saskatchewan.....	57·0
		Fort Edmonton.....	74·0
		RECAPITULATION.	
		Battleford to Fort Pitt (south side)	93
		Fort Pitt to Victoria.....	129
		Victoria to Edmonton.....	74
			297

APPENDIX No. 30.

OFFICIAL CORRESPONDENCE

From 1st July, 1867, to 31st December, 1885.

APPENDIX No. 30.

Ref. No. 63,651.

OFFICIAL CORRESPONDENCE.

LIST of Letters Recived and Sent from 1st July, 1867, to 31st Dec., 1885.

Years.	Received.	Sent.
1867—From 1st July to 31st December.....	2,075	1,511
1868 do 1st January to 31st December	3,498	2,317
1869 do do do	3,448	2,171
1870 do do do	4,961	3,185
1871 do do do	6,268	3,983
1872 do do do	8,333	4,428
1873 do do do	10,072	5,707
1874 do do do	9,800	5,043
1875 do do do	9,006	5,006
1876 do do do	7,971	4,773
1877 do do do	7,517	4,425
1878 do do do	6,886	4,021
1879 do do to 6th October.....	7,186	4,547
1879* do 7th October to 31st December.....	2,033	810
1880 do 1st January do	8,451	4,410
1881 do do do	9,599	5,529
1882 do do do	10,505	5,699
1883 do do do	11,633	6,227
1884 do do do	13,114	6,903
1885 do do do	† 8,977	5,321

* By an Order in Council, approved on 19th May, 1879, published at page 1496 of the *Canada Gazette*, the 20th May of that year was fixed as the day for separating the Department of Railways and Canals from the Department of Public Works, in accordance with Act 42 Vic., chap. 7. The staff of officers and clerks of the Department of Public Works continued to manage in common the business of the two Departments until the 1st October, when an Order in Council was approved dividing the staff between the two Departments. The first letter of the new Department of Public Works was written on 7th October.

The above list does not include the correspondence of the chief officers of the Department with their assistants and the public, which averages over 8,000 letters per year.

† The decrease in the numbers of letters received and sent is not caused by any actual diminution of letters, but by a change in the manner of filing since 1st April. Up to that date all accounts were registered singly, and a letter accompanied each payment. Now, accounts are filed by subjects, as many as thirty or forty accounts being sometimes covered by one number; and printed slips have been substituted for the letters which formerly accompanied payments. A very considerable saving of time has been effected by these changes, and the business of the Department greatly facilitated.

APPENDIX No. 31.

LIST OF PIERS

IN

PRINCE EDWARD ISLAND

ASSUMED BY

DOMINION GOVERNMENT.

APPENDIX No. 31.

1. LIST of the piers in Prince Edward Island, declared by Order in Council of 29th February, 1884, to be of Federal importance, and assumed by the Dominion Government, the cost of which, since Confederation, has been repaid to the Local Government of Prince Edward Island out of the vote passed for that purpose at the Session of Parliament, 1885:—

Annandale Pier.....	\$2,474 25
Belfast do	4,355 04
Campbell's Cove Pier.....	100 00
China Point do	3,436 47
Crapaud (Victoria Harbour) Pier.....	4,267 72
Georgetown.....	2,254 24
Hickey's Pier	1,255 27
Higgin's Shore Pier	2,543 05
Hurd's Point do	2,000 62
Kier's Shore do	5,091 50
Lambert's do	486 95
Lewis Point do	2,250 00
Mink River do	293 25
McGee's do	2,721 25
Nine-Mile Creek do	482 00
North Cardigan do	2,732 70
Pinette do	1,814 00
Fort Selkirk do	2,947 75
Pownal do ..	3,429 92
Rustico do	657 80
South River do	1,021 50
St. Mary's Bay do	1,336 59
Tignish do	135 26
Vernon River do	908 66
West Point do	4,226 40
	<u>\$53,222 19</u>

2. LIST of Piers in Prince Edward Island declared by Order in Council of 16th December, 1884, to be of Federal importance, and for which a grant of \$24,240.00 was made at the Session of 1885, but possession of which was not taken until after the close of the fiscal year 1884-85:—

Clifton Pier.....	\$ 208 00
Bay View do	1,599 00
Chapel Point do	2,281 38
Montague do	1,462 84
Stevens' do	1,234 00
Sturgeon do	847 92
Wood Island do	4,244 23
Cape Traversedo	12,362 64
	<u>\$24,240 00</u>

APPENDIX No. 32.

STATEMENT

OF

EXPENDITURE ON PUBLIC WORKS

OF THE

DOMINION OF CANADA,

FROM

1st JULY, 1867, TO 30th JUNE, 1883,

ALSO

STATEMENT OF EXPENDITURE PRIOR TO AND SINCE
CONFEDERATION.

By O. DIONNE, Accountant.

APPENDIX

No. 1.—COMPARATIVE STATEMENT of Expenditure on the Public

Number.	Works.	From 1st July, 1867, to 30th June, 1882.		1883.
		\$	cts.	\$ cts.
1	Railways—Construction.....	55,491,071	82	†11,707,619 02
2	do Subsidies (exclusive of subsidy paid to C. P. R. Co)....			
3	do Working Expenses.....	20,709,640	19	2,636,551 70
4	Canals—Construction.....	23,447,564	27	1,857,545 56
5	do Staff and Repairs.....	5,239 257	67	484,128 10
Totals, Railways and Canals.....		104,887,533	95	16,685,844 33
6	Public Buildings—Construction.....	7,296,265	45	675,260 08
7	do Repairs (including heating Ottawa Buildings).....	3,045,892	05	312,289 87
8	do Heating.....			10,739 68
9	do Salaries of Engineers, Firemen, &c.....			14,787 02
10	Harbours and Breakwaters.....	3,737,167	54	586,633 72
11	Rivers—Improvement.....	686,009	03	125,355 42
12	do Maintenance of Buoys.....	2,433	76	457 50
13	Dredges—Construction.....	309,929	28	13,081 34
14	do Repairs, &c.....	49,289	21	16,480 43
15	Dredging (not apportioned to any service).....	86,531	95	9,510 70
16	Slides and Booms—Construction.....	305,110	26	3,516 38
17	do Staff and Repairs.....	1,019,702	15	81,842 98
18	Roads and Bridges—Construction and Improvement.....	1,144,436	55	4,066 83
19	do Maintenance.....	601,479	75	
20	Telegraph Lines—Construction.....	360,050	38	88,149 74
21	do Working Expenses.....	386,322	18	53,844 30
22	Lighthouses—Construction.....	1,186,212	65	32,902 32
23	Dominion Steamers—Construction.....	186,250	66	
24	Miscellaneous—			
25	Surveys.....	399,623	47	29,829 98
26	Arbitrations.....	91,055	60	3,338 90
27	Tug service between Montreal and Kingston.....	96,302	84	
28	Monument to late Sir George Et. Cartier, Bart.....			1,319 15
29	do Joseph Brant.....			
30	Agent and Contingencies, British Columbia.....	16 944	19	2,811 30
	Sundries.....	6,649	46	2,000 00
Totals, Public Works.....		21,013,758	41	2,068,217 6
Grand Totals.....		*125,901,292	36	18,754,062 0

*N.B.—For explanation respecting discrepancy between above statement and that published in Statement No. 2, page 441.

†Exclusive of \$18,703 67 now refunded. See Public Accounts, 1882-83, page xxiv.

\$	do	24,540 25	do	do	1883-84	do
\$	do	1,634 90	do	do	1883-84	do

\$14,877 82

No. 32.

Works of Canada, from 1st July, 1867, to 30th June, 1885.

Year ended 30th June		Total, up to 30th June, 1885.	Number.	Remarks.
1884.	1885.			
\$ cts.	\$ cts.	\$ cts.		
†14,134,933 05	11,241,975 04	a 92,575,598 93	1	a. Including \$21,649,485.87 subsidy paid to the
258,000 00	403,245 00	661,245 00	2	Canadian Pacific Railway Co.
2,641,284 53	2,749,710 53	28,740,186 95	3	
\$ 1,665,350 72	1,572,917 41	28,543,377 96	4	
564,234 77	519,721 93	6,807,342 47	5	
19,266,803 07	16,487,569 91	157,327,751 31		
1,292,494 83	1,040,571 27	b 10,304,691 63	6	b. Including \$20,047.80 contributed by City Cor-
348,314 85	271,435 31	3,977,932 08	7	porations, &c.
28,112 39	31,773 76	70,625 83	8	
22,347 68	25,422 24	62,556 94	9	
†† 852,553 64	749,530 35	c 5,925,835 25	10	c. Including \$141,179.78 contributed by Munici-
				palities, &c.
178,609 30	198,640 69	d 1,188,614 44	11	d. Including \$7,400 contributed by Municipali-
		2,891 26	12	ties, &c.
115,552 44	21,424 70	459,987 76	13	
24,714 71	26,939 59	117,423 94	14	
9,760 25	9,313 66	115,116 56	15	
30,905 28	38,525 99	e 378,057 91	16	e. Including \$1,600 contributed by the Canada
82,074 14	72,111 59	1,255,730 86	17	Pulp Co.
33,985 79	20,108 33	f 1,202,597 50	18	f. Including \$13,500 contributed by the Local
	35 46	601,515 21	19	Governments of Ontario and Quebec.
49,304 16	49,973 63	547,477 91	20	
80,006 71	84,221 34	604,394 53	21	
49,033 55	50,512 06	g 1,318,660 58	22	g. This sum was expended as follows :—
				Through the Pub. Works Dept. \$ 75,588 51
				do Marine Departm't. 1,243,072 07
				\$1,318,660 58
56,164 71	47,238 03	h 289,653 40	23	h. Expended through the Department of Marine.
28,982 61	31,203 26	489,639 32	24	
2,818 00	3,059 27	100,271 77	25	
		96,302 84	26	
733 45	8,294 19	10,346 77	27	
50 00		50 00	28	
2,796 49	2,685 31	25,237 31	29	
1,650 00		10,299 46	30	
3,290,964 98	2,783,020 03	29,155,961 06		i. Charged to capital..... \$122,245,939 32
				do income..... 64,237,773 05
12,557,768 05	19,270,589 94	i 186,483,712 37		\$186,483,712 37

Public Works Report, 1867-82, Appendix No. 1, pages 141 and 143, see Public Works Report, 1883-84,

†† Including \$246 30 transferred from Rivers.

O. DIONNE,
Accountant.

No. 2.—ABSTRACT Statement of Expenditure on Public Works of the Dominion

Number.	Works.	Nova Scotia.	Entered Confederation, 1st July, 1873.	New Brunswick.
			— Prince Edward Island.	
		\$ cts.	\$ cts.	\$ cts.
1	Intercolonial Railway—Construction.....	9,067,739 18		13 302,251 27
2	do Working Expenses.....	7,263,491 75		11,147,051 36
3	do do (Windsor Branch)	81,208 93		
4	Eastern Extension Railway—Construction.....	1,284,311 97		
5	do Working Expenses.....	40,809 43		
6	Prince Edward Island Railway—Construction.....		540,104 89	
7	do Working Expenses.....		2,028,792 85	
8	Pacific Railway—Construction.....			
9	do Working Expenses.....			
10	Coteau Railway Bridge.....			
11	Railway Subsidies.....			
12	General on Railways.....			
13	Canals—Construction.....	499,269 20		44,387 53
14	do Staff and Repairs.....	29,062 14		
	Totals, Railways and Canals.....	18,265,892 60	2,568,897 74	24,493,690 16
15	Public Buildings—Construction.....	207,917 67	78,270 03	1,434,374 57
16	do Repairs(including heating Ottawa Public Buildings).....	72,262 89	24,928 71	52,989 52
17	do Heating.....	1,303 91	841 38	6,883 70
18	do Salaries of Engineers, Firemen, etc	3,488 03	2,106 21	7,514 32
19	Harbours and Breakwaters.....	1,096,722 84	287,710 04	742,186 87
20	Rivers—Improvement of.....	111,151 36	45,143 54	142,964 83
21	do Maintenance of Buoys.....			
22	Dredges—Construction.....	120,595 90	24,518 07	111,203 90
23	do Repairs, etc.....	27,783 89	7,358 66	15,477 59
24	Dredging (not apportioned to any service).....	132 44		
25	Slides and Booms—Construction.....			
26	do Staff and Repairs.....			
27	Roads and Bridges—Construction and Improvement			2,368 34
28	do Maintenance.....			
29	Telegraph Lines—Construction.....	71,694 29		16,269 11
30	do Working Expenses.....	6,367 73	20,439 93	6,133 68
31	Lighthouses—Construction.....	419,271 40	54,873 59	161,856 97
32	Dominion Steamers.....	60,603 83	60,603 83	60,603 84
	Miscellaneous:—			
33	Surveys.....	45,660 94	14,525 29	49,584 21
34	Sundries.....			
	Totals, Public Works.....	2,244,957 12	621,319 28	2,810,411 5
	Grand Totals.....	20,510,849 72	3,190,217 02	27,304,101 6

N.B.—For amounts contributed by Municipalities, etc., see Statement No. 5, page 446.

a Including \$14,787,284.87 subsidy paid to the Canadian Pacific Railway Co., also \$1,786.2 charged to "Consolidated Fund"—see Public Accounts 1881-82, part II, folio 295.

b Including \$14,999.33 High Commissioner's house, London, England.

c \$246.30 included with Rivers in last year's Statement, now transferred to Harbours.

d Including \$441,915.98 expenditure incurred on account Esquimaux Graving Dock, under authority of 37, 43 and 47 Vic., c 17, 15 and 6, and now assumed by the Dominion Government.

e Including \$1,192,560.01 expended through the Department of Marine.

f Expended through the Department of Marine.

DEPARTMENT OF PUBLIC WORKS,

OTTAWA, 9th January, 1886.

of Canada, from 1st July, 1867 (date of Confederation), to the 30th June, 1884.

Quebec.	Ontario.	Entered Confederation			Miscellaneous not apportioned to any of the Provinces.	Total, to 30th June, 1884.	Number.
		15th July, 1870.		20th July, 1871.			
		Manitoba.	North-West Territories.	British Columbia.			
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	
9,851,790 20						32,221,780 65	1
5,110,121 12						23,520,664 23	2
						81,208 93	3
						1,284,311 97	4
						40,809 43	5
						540,104 89	6
						2,028,792 85	7
	20,081,637 67	5,666,925 86	6,855,058 70	14,671,025 57		447,274 647 80	8
		319,000 98				319,000 98	9
522 00						522 00	10
176,000 00	32,000 00	50,000 00				258,000 00	11
						12,256 58	12
11,228,351 17	15,123,201 88		32,675 65		42,575 12	26,970,460 55	13
2,466,822 59	3,727,545 52				64,190 29	6,287,620 54	14
38,833,607 08	38,964,385 07	6,035,926 84	6,887,734 35	14,671,025 57	119,021 99	140,840,181 40	
2,187,622 58	3,902,545 98	665,907 92	298,744 11	320,964 50	167,773 00	9,264,120 36	15
374,401 29	3,089,190 35	66,630 34	7,418 50	17,308 02	1,367 15	3,706,496 77	16
14,364 68	10,998 97	3,712 50	96 00	365 74	285 19	38,852 07	17
8,480 40	15,070 74			475 00		37,134 70	18
594,996 72	2,323,743 12	787 79		d 554,474 66	17,648 84	5,618,270 88	19
426,098 88	151,138 26	45,104 94	20,537 71	47,834 23		989,973 75	20
2,891 26						2,891 26	21
33,016 45	74,304 81	46,910 81		28,013 12		438,563 06	22
14,897 03	8,490 90			16,476 28		90,484 35	23
44,424 31	55,676 17				5,569 98	105,802 50	24
280,252 15	59,279 77					339,531 92	25
744,201 48	439,369 27				48 52	1,183,619 27	26
92,710 74	719,336 03	366,304 53	1,769 53			1,182,489 17	27
	526,496 64	74,983 11				601,479 75	28
240,101 58	22,000 00	72 00	39,375 43	98,936 57	9,055 30	497,504 28	29
24,437 70			27,438 31	427,995 08	7,310 75	520,173 19	30
370,255 31	200,529 88	1,590 86		55,002 68	4,767 80	e 1,268,148 52	31
60,603 86						f 242,415 37	32
127,458 94	180,524 71	4,192 28	1,113 99	2,893 27	32,482 39	458,436 06	33
48,588 66	48,151 42			22,552 00	109,177 30	228,469 38	34
689,854 05	11,826,847 02	1,276,197 08	396,493 58	1,593,291 15	355,486 22	26,814,857 01	
1,523,461 13	50,791,232 09	7,312,123 92	7,284,227 93	16,264,316 72	474,508 21	167,655,038 41	

O. DIONNE,
Accountant.

No. 3.—ABSTRACT Statement of Expenditure on Public Works

Number.	Works.	Nova Scotia.		P. E. Island.		New Brunswick.	
		\$	cts.	\$	cts.	\$	cts.
1	Intercolonial Railway—Construction.....	262,378	07			505,977	33
2	do Working expenses	566,771	66			996,936	81
3	do do Windsor Branch	18,751	96				
4	Eastern Extension Railway—Construction.....	2,055	92				
5	do Working expenses	78,273	65				
6	Prince Edward Island Railway—Construction....			76,956	56		
7	do Working expenses			211,207	01		
8	Pacific Railway—Construction						
9	Short Line Railway—do					11,581	14
10	Railway Subsidies					32,000	00
11	Railways Generally						
12	Canals—Construction	16,820	15				
13	do Staff and repairs.....	2,116	72				
14	Road dyke along Lake St. Francis						
Totals, Railways and Canals		947,168	13	288,163	57	1,546,495	28
15	Public Buildings—Construction	67,794	75	22,273	75	96,116	12
16	do Repairs, &c	1,763	22	933	53	1,986	17
17	do Salaries of Engineers	2,487	00	1,533	16	4,787	93
18	do Heating (exclusive of Ottawa Build- ings)	1,137	45	424	41	3,517	76
19	Harbours and Breakwaters	58,844	65	72,049	18	44,347	08
20	Rivers—Improvements	3,040	38			22,228	58
21	do Maintenance of Buoys						
22	Dredges—Construction	332	59			332	59
23	do Repairs	8,404	34	1,468	63	5,127	03
24	Dredging (not appointed to any service)						
25	Slides and Booms—Construction						
26	do Staff and repairs.....					4,152	62
27	Roads and Bridges—Construction and improvements.					1,086	64
28	do Maintenance					7,667	42
29	Telegraph Lines—Construction	2,521	25	1,946	66	11,809	51
30	do Working expenses.....	4,352	42	879	40		
31	Lighthouses—Construction	11,809	51	11,809	51		
32	Dominion Steamers						
<i>Miscellaneous—</i>							
33	Surveys	1,562	39	459	53	459	53
34	Arbitrations						
35	Monument to late Sir George Et. Cartier, Bart. ...						
36	Agent and Contingencies, British Columbia						
Totals, Public Works.....		164,049	95	113,777	76	203,628	96
Grand Totals.....		1,111,218	08	401,941	33	1,750,124	26

a. Including \$6,862,201 00 subsidy paid to Canadian Pacific Railway Company.

b. do 17,797 62 spent in State of Maine, U.S.

c. do 5,558 20 contributed by Corporation of Quebec.

d. do 4,025 27 do do City of Winnipeg.

e. do 703 17 for London High Commissioner's House.

f. do 1,751 97 part of forfeited security of contractors.

g. do 9,479 79 contributed by Municipalities, &c.

h. do 635 38 do Local Government, Ontario.

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, 9th January, 1886.

of the Dominion of Canada, for Year ended 30th June, 1885.

Quebec.	Ontario.	Manitoba.	North-West Territories.	British Columbia.	Miscellaneous not apportioned to any of the Provinces.	Total.	Number.
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	
427,007 68						1,195,363 08	1
877,769 44						2,441,477 91	2
						18,751 96	3
						2,055 92	4
						78,273 65	5
						76,956 56	6
						211,207 01	7
	5,559,686 06	33,732 43	10,640 60	4,296,223 04		29,900,281 53	8
18,063 45					5 19,942 86	49,587 45	9
111,205 00	260,040 00					403,245 00	10
					17,730 50	17,730 50	11
414,903 94	1,131,194 97				5,650 85	1,568,569 91	12
196,543 45	317,064 04				3,997 72	519,721 93	13
4 347 50						4,347 50	14
2,049,840 46	7,267,985 07	33,732 43	10,640 00	4,296,223 04	47,321 93	16,487,569 91	
c 278,679 64	325,213 59	d 141,091 82	61,692 87	34,291 70	e 13,417 03	1,040,571 27	15
5 682 30	254,271 74	3,483 69	882 94	2,431 72		271,435 31	16
5 288 31	10,065 84		200 00	1,060 00		25,422 24	17
13,549 07	8,683 26	2,899 00	420 00	530 74	611 97	31,773 76	18
160,597 27	g 349,551 45	988 60		57,544 94	5,607 18	749,530 35	19
74,565 65	60,018 34	19,797 57	6,567 00	12,306 17		198,523 69	20
117 00						117 00	21
4,950 02	15,020 40	194 88		70 50	5 3 72	21,424 70	22
5,174 66	2,143 51			2,400 29	2,221 13	26,939 59	23
410 57	3,989 75				4,913 34	9,313 66	24
29,864 17	8,661 82					38,525 99	25
43,883 18	28,228 41					72,111 59	26
6,213 81	h 13,894 52					20,108 33	27
	35 46					35 46	28
26,623 11			12,343 03	4,027 19	2,827 68	49,973 63	29
9,589 76			21,837 24	34,355 32	12,874 47	84,221 34	30
4,254 87	27,977 42			5,223 11	57 42	50,512 06	31
11,809 50						47,238 03	32
14,915 91	4,638 78	2,283 58		525 20	6,358 34	31,203 26	33
					3,059 27	3,059 27	34
					8,294 19	8,294 19	35
				2,685 31		2,685 31	36
696,268 80	1,112,394 39	170,739 14	103,943 08	157,452 19	60,765 74	2,783,020 03	
2,746,109 26	8,380,379 46	204,471 57	114,583 08	4,453,675 23	108,087 67	19,270,589 94	

O. DIONNE,
Accountant.

No. 4—ABSTRACT Statement of Expenditure on Public Works of the Dominion

Number.	Works.	Nova Scotia.	Entered Confederation 1st July, 1873.	New Brunswick.
			Prince Edward Island.	
		\$ cts.	\$ cts.	\$ cts.
1	Intercolonial Railway—Construction	9,330,117 25		13,808,228 60
2	do Working Expenses	7,830,263 41		12,143,988 17
3	do do (Windsor Branch)	99,960 89		
4	Eastern Extension Railway—Construction	1,286,367 89		
5	do Working Expenses	119,083 08		
6	Prince Edward Island Railway—Construction		617,061 45	
7	do Working Expenses		2,239,999 86	
8	Pacific Railway—Construction			
9	do Working Expenses			
10	Short Line Railway—Construction			11,581 14
11	Coteau Railway Bridge			
12	Railway Subsidies			32,000 00
13	General on Railways			
14	Canals—Construction	516,089 35		44,387 53
15	do Staff and Repairs	31,178 86		
16	Road Dyke along Lake St. Francis			
	Total, Railways and Canals	19,213,060 73	2,857,061 31	26,040,185 44
17	Public Buildings—Construction	275,712 42	100,543 78	1,530,490 69
18	do Repairs, &c. (including heating Ottawa Public Buildings)	74,026 11	25,862 24	54,975 69
19	do Heating	2,441 36	1,265 79	10,401 46
20	do Salaries of Engineers, Firemen, &c	5,975 03	3,639 37	12,302 25
21	Harbours and Breakwaters	1,155,567 49	359,759 22	786,532 95
22	Rivers—Improvements of	114,191 74	45,143 54	165,193 41
23	do Maintenance of Buoys			
24	Dredges—Construction	120,928 49	24,518 07	111,536 49
25	do Repairs	36,188 23	8,827 29	20,604 62
26	Dredging (not apportioned to any service)	132 44		
27	Slides and Booms Construction			
28	do Staff and Repairs			
29	Roads and Bridges—Construction and Improvement			2,368 34
30	do Maintenance			
31	Telegraph Lines—Construction	71,694 29		20,421 73
32	do Working Expenses	8,888 98	22,386 59	7,230 33
33	Lighthouses—Construction	423,623 82	55,752 99	169,524 39
34	Dominion Steamers	72,413 34	72,413 34	72,413 36
	Miscellaneous :—			
35	Surveys	47,223 33	14,984 82	50,043 78
36	Sundries			
	Totals, Public Works	2,409,007 07	735,097 04	3,014,040 49
	Grand Totals	21,622,067 80	3,592,158 35	29,054,225 93

N.B.—For amounts contributed by Municipalities, &c., see Statement No. 5, page 446.

a. Including \$21,649,485.87 subsidy paid to Canadian Pacific Railway Company.

b. do 17,797.62 spent in State of Maine, U.S.

c. do 15,702.50 High Commissioner's House, London, England.

d. do 1,243,072.07 expended through the Department of Marine

e. This sum was expended through the Department of Marine.

DEPARTMENT OF PUBLIC WORKS,

OTTAWA, 9th January, 1886.

of Canada, from 1st July, 1867 (date of Confederation), to 30th June, 1885.

Quebec.	Ontario.	Entered Confederation.			Miscellaneous not apportioned to any of the Provinces.	Total, to 30th June, 1885.	Number.
		15th July, 1870.		20th July, 1871.			
		Manitoba.	North-West Territories.	British Columbia.			
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	
0,278,797 83						33,417,143 73	1
5,987,890 56						25,962,142 14	2
						99,960 89	3
						1,286,367 89	4
						119,083 08	5
						617,061 45	6
						2,239,999 86	7
	25,641,323 73	5,700,658 29	6,865,698 70	18,967,248 61		457,174,929 33	8
		319,000 98				319,000 98	9
18,063 45					5 19,942 86	49,587 45	10
522 00						522 00	11
287,205 00	292,040 00	50,000 00				661,245 00	12
					29,987 08	29,987 08	13
1,643,255 01	16,254,396 85		32,675 65		48,225 97	28,539,030 46	14
2,663,366 04	4,044,609 56				68,188 01	6,807,342 47	15
4,347 50						4,347 50	16
1,883,447 54	46,232,370 14	6,069,659 27	6,898,374 35	18,967,248 61	166,343 92	157,327,751 31	
466,302 22	4,227,759 57	806,999 74	360,436 98	355,256 20	181,190 03	10,304,691 63	17
380,083 59	3,343,462 09	70,114 03	8,301 44	19,739 74	1,367 15	3,977,932 08	18
27,913 75	19,682 33	6,611 50	516 00	896 48	897 16	70,625 83	19
13,768 71	25,136 58		200 00	1,535 00		62,556 94	20
755,593 99	2,673,294 57	1,776 39		612,019 60	23,256 02	6,367,801 23	21
500,664 53	211,156 60	64,902 51	27,104 71	60,140 40		1,188,497 44	22
3,008 26						3,008 26	23
37,966 47	89,325 21	47,105 69		28,083 62	523 72	459,987 76	24
20,071 69	10,634 41			18,876 57	2,221 13	117,423 94	25
44,834 88	59,665 92				10,483 32	115,116 56	26
310,116 32	67,941 59					378,057 91	27
788,084 66	467,597 68				48 52	1,255,730 86	28
98,924 55	733,230 55	366,304 53	1,769 53			1,202,697 50	29
	526,532 10	74,983 11				601,515 21	30
266,724 69	22,000 00	72 00	51,718 46	102,963 76	11,882 98	547,477 91	31
34,077 46			49,275 55	462,350 40	20,185 22	604,394 53	32
374,610 21	228,507 30	1,590 86		60,225 79	4,825 22	1,318,660 58	33
72,413 36						289,653 40	34
142,374 85	185,163 49	6,475 86	1,113 99	3,418 47	38,840 73	489,639 32	35
48,588 66	48,151 42			25,237 31	120,530 76	242,508 15	36
386,122 85	12,939,241 41	1,446,936 22	500,436 66	1,750,743 34	416,251 96	29,597,877 04	
269,570 39	59,171,611 55	7,516,595 49	7,398,811 01	20,717,991 95	582,595 88	186,925,628 35	

MEMO.—Amount expended to 30th June, 1885, as per Statement No. 1, page 439... \$186,483,712 37

ADD—Expenditure on account Esquimalt Graving Dock, now assumed by Government..... 441,915 98

Total as above..... \$186,925,628 35

O. DIONNE,
Accountant.

No. 5.—STATEMENT showing amounts contributed by Municipalities, &c., towards the construction of the undermentioned Works, and included in Statements of Expenditure, from 1st July, 1867, to 30th June, 1885, pages 438 to 445.

Number.	Works	From 1st July, 1867, to 30th June, 1882.	Fiscal Year ended 30th June—						Total to 30th June, 1885.										
			1883.		1884.		1885.												
			II.	\$	cts.	II.	\$	cts.		II.	\$	cts.							
1	Public Buildings—																		
2	Quebec Citadel "Cliff" ..	2,500 00																	2,500 00
3	do Drill Shed ..	2,433 33																	5,558 20
4	do Fortifications ..	5,000 00																	2,433 33
5	Ottawa Drill Shed ..																		5,000 00
6	Sarnia Immigrant Shed ..																		117 00
7	Winnipeg Drill Shed ..																		4,025 27
	do Post Office ..																		414 00
	Totals, Public Buildings ..	9,933 33																	20,047 80
8	Harbours and Breakwaters :—																		
9	St. John Harbour, N. B. ..	10,000 00																	1,751 97
10	Bayfield do Ont. ..																		10,000 00
11	Belleville do do ..	25,507 49																	3,154 50
12	Cobourg do do ..	28,268 26																	25,957 49
13	Collingwood do do ..	10,000 00																	28,268 26
14	Goderich do do ..																		10,000 00
15	L'Orignal Wharf do do ..	10,000 00																	1,000 00
16	Meaford Harbour do do ..																		10,000 00
17	Morpeth do do ..																		4,202 27
18	Newcastle do do ..																		2,500 00
19	Owen Sound do do ..																		13,000 00
20	Port Elgin do do ..																		3,045 29
21	Rondeau do do ..	300 00																	300 00
22	Thornbury do do ..																		7,000 00
	Warton do do ..																		21,000 00
	Totals, Harbours, &c.	84,075 75																	141,179 78
	Rivers :—																		
	Nonanase ..	5,000 00																	5,000 00

	Totals, Rivers.....	7,400 00					2,400 00
	Slides and Booms :—						
25	St. Maurice Falls.....		311	1,600 00			7,400 00
	Bridges :—						1,600 00
26	Des Jochims Bridge.....			343	7,364 62	336	8,000 00
27	Portage du Fort Bridge.....						5,500 00
	Total, Bridges.....						13,500 00
	Grand Totals.....	106,909 08		17,366 39	33,342 92	26,109 19	183,727 58

a Her Majesty the Queen's gift. *b* Security deposits forfeited by Contractors.

O. DIONNE,
Accountant.

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, 9th January, 1886.

No. 6.—EXPENDITURE on account of Works authorized by Special Acts of Parliament, from 1st July, 1867, to 30th June, 1885.

Number.	Name of Work.	Amount Authorized.	Fiscal Year ended 30th June—			Total to 30th June, 1885.
			1883.	1884.	1885.	
		\$	\$	\$	\$	\$
1	St. Lawrence River—Deepening between Quebec and Montreal—					
	36 Vic., cap. 60.....	\$1,500,000				
	45 do 44.....	280,000				
	46 do 38.....	900,000				
2	Quebec Harbour Improvement—	2,680,000	xiii. 1,500,000	xxxv. 110,000	xxxvii. 300,000	2,190,000
	36 Vic., cap. 62.....	1,200,000				
	43 do 17.....	250,000				
	45 do 47.....	375,000				
	47 do 9.....	300,000				
3	Lévis Graving Dock—	2,125,000	xiii. 1,405,000	xxxv. 200,529	xxxvii. 282,931	1,955,000
	38 Vic., cap. 56.....	500,000				
	46 do 40.....	100,000				
	47 do 10.....	150,000				
	Totals.....	760,000	xiii. 350,000	xxxv. 137,000	xxxvii. 110,000	672,000
		5,555,000	421,540	447,529	692,931	4,817,000

N.B.—The expenditure on account "Esquimaux Graving Dock" is now included in cost of Harbours, British Columbia, the works having been assumed by the Dominion Government.

DEPARTMENT OF PUBLIC WORKS,
OTTAWA, 9th January, 1886

O. DIONNE,
Accountant.

OTTAWA PARLIAMENT AND DEPARTMENTAL BUILDINGS.

No. 8.—DETAILED Statement of Expenditure for Construction, since the commencement of above Buildings (1859), to 30th June, 1885.

	Prior to Confederation.	Since Confederation.	Total.	Grand Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
PARLIAMENT BUILDING	1,419,355 68	91,188 89	1,510,544 57	
Library		301,812 45	301,812 45	
Main Tower (completion)		24,500 25	a 24,500 25	
Fire and water service, $\frac{1}{2}$ cost		36,206 55	36,206 55	
Exit from galleries		4,999 99	4,999 99	
Pump house		1,600 99	1,600 99	
Telephonic service, $\frac{1}{2}$ cost.		1,849 53	1,849 53	
Ventilation		5,214 72	5,214 72	
P. O. alterations, House of Commons ..		1,361 00	1,361 00	
Electric light		7,887 39	7,887 39	
Totals	1,419,355 68	476,621 76		1,895,977 44
EASTERN BLOCK	641,036 37	17,470 07	658,506 44	
Attics		10,516 60	10,516 60	
Fire and water service, $\frac{1}{2}$ cost		18,104 85	18,104 85	
Alterations and additions		10,997 59	10,997 59	
Vault (completion of)		8,822 98	8,822 98	
Telephonic service, $\frac{1}{2}$ cost		924 76	924 76	
Totals	641,036 37	66,836 85		707,873 22
WESTERN BLOCK	641,036 38	17,470 07	658,506 45	
Extension		462,247 11	462,247 11	
Fire and water service, proportion of cost ..		17,721 23	17,721 23	
Alterations and additions		11,381 22	11,381 22	
Telephonic service, $\frac{1}{2}$ cost		924 76	924 76	
Totals	641,036 38	509,744 39		1,150,780 77
WELLINGTON STREET BLOCK—				
Site—Purchase, interest, legal services, &c		90,955 52	90,955 52	
Drains—Wellington and Bank streets		6,348 00	6,348 00	
Masonry work		39,960 00	39,960 00	
Miscellaneous Expenditure		18,558 16	18,558 16	
Totals		155,821 68		155,821 68
GROUNDS—For details, see Appendix No. 28, Public Works Report, 1883-84, p. 451	22,565 50	375,965 01		398,530 51
WORKSHOPS (now Supreme Court).		50,232 69	50,232 69	b 50,232 69
Sheds, drying house, &c.		1,657 45	1,657 45	1,657 45
Grand Totals	2,723,993 93	1,636,879 83		4,360,873 76

a. Including \$752.63 for the tower bell; also \$2,737.83 for clock.

b. Apart from this amount, a sum of \$13,919 70 (see App 43, page 1192 of General Report on Public Works, 1867 to 1882) was expended for the conversion of the workshops into Supreme Court making a total outlay of \$64,212 39 on that building.

N.B.—The above expenditure is charged as follows, viz.:—

Against "Capital" (exclusive of \$12,379.20 charged to "Supreme Court")	\$ 4,244,133 37
do "Consolidated Fund"	116,740 39

\$ 4,360,873 76

O. DIONNE, Accountant.

DEPARTMENT OF PUBLIC WORKS, OTTAWA, 9th January, 1886.

DOMINION OF CANADA.

ANNUAL REPORT

OF THE

MINISTER

OF

RAILWAYS AND CANALS

FOR THE PAST

Fiscal Year from 1st July, 1884, to 30th June,
1885

ON THE WORKS UNDER HIS CONTROL.

SUBMITTED IN ACCORDANCE WITH THE PROVISIONS OF THE ACT THIRTY-FIRST
VICTORIA, CHAPTER TWELVE, SECTION NINETEEN, AS AMENDED BY THE
ACT FORTY-SECOND VICTORIA, CHAPTER SEVEN.

PRINTED BY ORDER OF THE HOUSE OF COMMONS.



OTTAWA:

PRINTED BY MACLEAN, ROGER & CO., WELLINGTON STREET.

1886.

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ERRATA.

- P. 77. 12th line for "\$237,428.13" read "\$236,428.13"
139. 7th line from bottom for "Ontario" read "certain".
141. Last line for "Engineer in chief" read "Engineer in charge".
142. Last line, for "for Wrightson & Co.", read "Head, Wrightson & Co."
169. Number 12. Gravenhurst to Callander, for "45 Vic., cap. 8," read "45 Vic., c. 23"
- " " 19. Intercolonial Ry. Total subsidy, for "38000" read 38400.
170. " 36. Ottawa, Waddington & New York. Total subsidy not to exceed
for "\$166,000" read "\$166,400".
- " " 41. For "46 Vic., c. 8," read "46 Vic., c. 25".
- " " " For "48 Vic., c. 58," read "48 Vic. c. 59".

REPORT

1884—85.

To His Excellency the Most Honourable the Marquess of Lansdowne,

Governor General of Canada, &c., &c., &c.

MAY IT PLEASE YOUR EXCELLENCY :

I have the honour to submit the Annual Report of the Department of Railways and Canals for the fiscal year ended 30th of June, 1885.

This report is submitted in accordance with the provisions of the Act 31 Vic. Cap. 12 (1867), as amended by the Act 42 Vic., Cap. 7, Sections 4 and 5 (1879).

The Annual Reports of the Chief Engineers, together with general and special Reports from Superintendents, both of Railways and Canals, and from other Officers of the Department, are given in Appendices.

Attached hereto (appendix 1, page 1) will be found a statement showing the amounts expended during the past fiscal year in construction, repairs, and maintenance of the several works under the Department.

RAILWAYS.

The present Report deals with the undermentioned Railways of the Dominion, either directly controlled by the Federal Government, or towards the construction of which subsidies have been authorized.

NOTE.—It should be observed that while the usual reports furnished by the Superintending Officers deal with the fiscal year only, the General Report of the Minister contains information on points of interest relating to the Canadian Pacific Railway and other subsidized lines up to the end of December, 1885.

CANADIAN PACIFIC RAILWAY.

TRUNK LINE.

Acquired—

	Miles.	Miles.
Quebec to Callander, direct		490
Montreal, (at the head of Atlantic ocean navigation) to Callander.....		344

Subsidized—

Callander to Port Arthur.....	651	
Port Arthur to Red River (opposite Winnipeg)..	428	
Red River to Savona's Ferry.....	1,257	
Savona's Ferry to the waters of the Pacific ocean at Port Moody.....	213	
	—	2,549
Total, Montreal to Port Moody.		2,893
Branch lines acquired and built (see list, app. 4, p. 10).....		432
		==

By the Act 44 Vic., ch. 1 (1881), a contract made with the Canadian Pacific Railway Company, under date the 21st of October, 1880, for the building of a line of railway between Callander, Lake Nipissing, and Port Moody, British Columbia, was approved and ratified.

By this contract the company undertook to construct the portions between Callander and Port Arthur, and between Red River and Savona's Ferry (Kamloops), British Columbia, the Government undertaking the building of the portions between Port Arthur and Red River, and between Savona's Ferry and Port Moody.

Under the terms of the contract, the whole line was to be completed and equipped by the 1st of May, 1891.

The total distance between the terminal points named, by the route finally adopted (*via* Winnipeg and the Kicking Horse Pass), is 2,549 miles, of which the portions built by the company are as follows:—

	Miles.	Miles.
Callander to Port Arthur.....	651	
Red River to Savona's Ferry	1,257	
	<hr/>	1,908
The portions built by the Government are as follows:—		
Port Arthur to Red River	428	
Savona's Ferry to Port Moody.....	213	
	<hr/>	641
		<hr/>
		2,549
		<hr/>

The whole line upon completion, together with the Pembina Branch from Winnipeg to Emerson, sixty-four and a-half miles, is to be the property of the company, to be operated and maintained by them, thenceforward. Up to the present date, although possession of portions of the road has been given to them, the final transfer has not been made.

In conformity with the terms of the contract, and an arrangement made with the company in May, 1883, for the completion of certain unfinished work, the whole of the road between Port Arthur and Red River (opposite Winnipeg), together with the Pembina Branch, has been handed over to the company.

PROGRESS OF WORKS UNDER THE GOVERNMENT.

The only work remaining to be executed by the Government on the 1st of July, 1884, was in the Province of British Columbia. At the date of the last annual report, 31st December 1884, the track had been laid for a distance of 210 out of the 213 miles of Government work between Port Moody and Savona's Ferry, and certain ballasting and other work remained to be done. This has since been completed.

PROGRESS OF WORKS UNDER THE COMPANY.

Callander to Port Arthur.—651 miles.—By a revision of the location, this section has been shortened by six miles. During the past year, large bodies of men were employed, with the result that at the beginning of April, 1885, the line was used for the conveyance of troops for the suppression of the rebellion in the North-West. The gaps that then existed in the road have since been completed, and continuous rail communication between Callander and Port Arthur was effected in May. The work of finishing the road, comprising ballasting, the provision of water service and station accommodation was carried on, and the Company's time table coming into effect on the 2nd of November last showed the line open for regular passenger traffic.

Port Arthur to Red River, opposite Winnipeg—428 miles.—This section was transferred to the company prior to full completion, and the work of ballasting and filling in valleys crossed by temporary bridges has been since executed by the company under a special agreement.

An elevator, the capacity of which is 1,000,000 bushels has been built by the company at Fort William. They have also an elevator at Port Arthur of 300,000 bushels capacity.

Red River to Savona's Ferry—1,257 miles.—The knowledge of the climatic conditions of the mountain section gained by last winter's experience showed the necessity of a relocation of part of the road, and such relocation has been effected without increase of the gradients, but with an addition of three miles to the length of the road. The line was open in October for traffic up to Donald Station, at the foot of the east slope of the Selkirks, a distance of 1,022 miles, and on the 7th of November, 1885, the last spike was driven, thus making rail connection from Port Moody to Montreal, a distance of 2,893 miles, or to Quebec, a distance of 3,039 miles. Of this distance, nine miles in British Columbia will ultimately be replaced by a road with easier grades, the construction of which has been postponed owing to the heavy tunnelling involved.

The subsidy granted to the company by the Act of 1881 was as follows: Money, \$25,000,000; land, 25,000,000 acres.

Under an Act passed in 1884, 47 Vic., chap. 1, in order to secure the completion of the entire road, by the month of May, 1886, a loan of \$22,500,000, bearing interest at 5 per cent., and payable in May, 1891, has been made to them, security being taken therefor by a mortgage on their entire property. Of this sum, \$7,500,000 was paid over to the company, to extinguish their then floating debt, and the remainder has been in course of payment as the work proceeds.

In the Session of 1885 an Act, 48-49 Vic., ch. 57, was passed, by which other arrangements were authorized in substitution for those contemplated by the Act, 47 Vic., ch. 1.

They included the issue and delivery to the Government of first mortgage bonds to the extent of \$35,000,000, bearing interest at 5 per cent., and secured by a mortgage on the entire property of the company (except the Algoma Branch), saving the rights of holders of existing mortgages on the extensions of the line from Callander to Brockville and Montreal. The Algoma Branch, however, still remained charged with the lien created by the Loan Act, 47 Vic., ch. 1, special provision being made for a postponement of such lien in the event of an extension of the branch. Upon such issue and delivery of bonds, the shares in the capital stock, to the extent of \$35,000,000, in the hands of the Government, were to be cancelled and destroyed.

The amounts for which the company are liable to the Government are,—

(a.) Loan under Act, 47 Vic., ch. 1.....	\$22,500,000
(b.) Balance of amount due under the agreement of the 10th of November, 1883.....	7,380,912
Total.....	<u>\$29,880,912</u>

This amount, with interest at 4 per cent., is to be repaid by the 1st of May, 1891.

Of this total of \$29,880,912 the sum of \$20,000,000 and interest was to be secured by the said first mortgage bonds to the extent of \$20,000,000, the remaining \$9,880,912 to be secured by a lien on the whole of the unsold lands of the company.

Of the remainder of these first mortgage bonds—equal, that is, to \$15,000,000—\$8,000,000 worth, were to be retained as security for a temporary loan, authorized by the Act, of \$5,000,000, and the balance were to be delivered to the company from time to time, to be applied, under government supervision, to the improvement and development of the road and the maintenance of its credit.

Under authority of Order in Council, a deed of mortgage, dated the 25th of July 1885, was executed, embodying the conditions of the Act.

The temporary loan of \$5,000,000 was made to the company on the 28th of July, 1885. The amount was, however, returned by them ;—\$3,000,000, on the 2nd of September, and \$2,000,000 on the 2nd November last.

PAYMENTS TO CANADIAN PACIFIC RAILWAY COMPANY.

Subsidy Account.

Amount of subsidy under the contract.....	\$25,000,000 00
Amount paid up to the end of the fiscal year 1882-83 (30th June 1883).\$7,533,076 60	
Amount paid during fiscal year 1883-4.	7,254,208 27
“ “ “ “ 1884-5.	6,862,201 00
	<u>21,649,485 87</u>
Amount paid from end of fiscal year 1884-5 to 31st December, 1885.....	2,895,427 00
	<u>24,544,912 87</u>
Balance on 31st December, 1885.....	<u>\$ 455,087 13</u>

Loan Account.

Amount of loan.....	\$22,500,000 00
Amount paid to end of fiscal year	
1883-4, the 30th June 1884.....	\$10,953,462 00
Amount paid from the end of the	
fiscal year 1884 to end of fiscal year	
30th June 1885.....	9,701,438 00
Amount paid from the end of the	
fiscal year 1884-5 to 31st Dec. 1885.	995,800 00
	<hr/> 21,650,700 00
Balance on 31st Dec. 1885.....	\$ 849,300 00

BRANCH LINES.

In addition to the subsidy for their main line, the company have, under their contract, the right to receive a grant, in so far as it is vested in the Government, of the land required for road bed, stations, &c., in the construction of branch lines.

A list of such branches will be found in Appendix 4, page 10. Their total length is the same as last year, 432½ miles.

NORTH SHORE RAILWAY.

Under the provisions of the Act passed last session 48-49 Vic. cap. 58, the grant of a sum of \$1,500,000 was authorized as a subsidy to secure free access to the port of Quebec for the trains and traffic of the Canadian Pacific Railway; the arrangements to be facilitated by the acquisition of the North Shore Railway by the Government from the Grand Trunk Railway by means of such subsidy, and the subsequent transfer or lease of the road to the Canadian Pacific Railway Company.

The said sum of \$1,500,000 was arrived at as follows:—

By the Act 47 Vic., ch. 8 (see No. 23), there was granted for the extension of the road from St. Martin's Junction to Quebec a subsidy not exceeding..	\$960,000
Also, by the same Act (see No. 34), for a line between the Jacques Cartier Union Railway Junction and St. Martin's Junction, a subsidy not exceeding.....	200,000
Also by the Act 48-49 Vic., ch. 58 (see No. 63), (which united the two above mentioned subsidies in the one object of obtaining free access for the	

traffic of the Canadian Pacific Railway from St. Martin's Junction to Quebec), a further subsidy not exceeding.....	340,000
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Total.....	\$1,500,000
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Of this, the amount applied to the purchase of the road was.....	525,000
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Balance.....	\$975,000
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The interest on this balance, is to be held available for covering any deficiency which may arise in the interest on the existing mortgage bonds of the road.

Under special agreements to this end dated the 19th of September last, executed under authority of an Order in Council of that date, the said road from St. Martin's Junction to Quebec was acquired by the Government and transferred to the Canadian Pacific Railway Company.

Reports on the Canadian Pacific Railway, from the Government Chief Engineer, dated the 10th of October and 31st of December, 1885, will be found in Appendices No. 4, page 10, and No. 20, page 166.

GOVERNMENT RAILWAYS IN OPERATION.

The several lines operated and maintained by the Government during the past fiscal year ended the 30th June, 1885, were:—

	Miles.
The Intercolonial and its extensions.....	861
Eastern Extension Railway.....	80
Windsor Branch (maintained only).....	32
Prince Edward Island	212
Total mileage.....	1,185

The through ocean mail line from Point Lévis, Québec, to Halifax, is 688 miles in length.

For details respecting these roads, see Appendix No. 5, p. 14 to 97.

The length of roads operated was increased by the completion of the St. Charles Loop Line, 14 miles, and the Cape Traverse Branch, 13 miles long.

The General Revenue Accounts for 1884-85 show the following as the financial position of these roads for the past fiscal year:—

	Expenditure.	Earnings.	Profit.	Loss.
	\$ cts.	\$ cts.	cts.	\$ cts.
Intercolonial.....	2,441,477 91	2,368,153 65	.....	73,324 26
Eastern Extension.....	78,273 65	73,050 01	.....	5,223 64
Prince Edward Island.....	211,207 01	158,588 06	.....	52,618 95
Windsor Branch (earnings, one-third of entire receipts).....	18,751 96	24,451 35	5,699 39	
			5,699 39	131,166 85
				5,699 39
Total loss on working.....				125,467 40

INTERCOLONIAL RAILWAY.

LENGTH OF LINE.

Ocean Mail Line.

	Miles.
Point Lévis to Rivière du Loup.....	126
Rivière du Loup to Moncton.....	374
Moncton to Painsec.....	8
Painsec to Truro.....	118
Truro to Halifax.....	62
	688

Extensions.

Moncton to St. John.....	89
Painsec to Shédiac.....	11
Truro to Pictou.....	52
Dalhousie Junction to Dalhousie.....	7
St. Charles Loop Line.....	14
	173
	861

Wharf Branches.

Rimouski to Wharf.....	2
Newcastle, N.B., to Deep Water Wharf.....	2
Dorchester to Shipping Wharf.....	1
Sackville to Shipping Wharf.....	0.5
Stewiacke to Wharf.....	1
	<hr/>
	6.5
	<hr/>

Capital Account.—The total cost of the road and equipment chargeable to capital account at the close of the fiscal year, 1883-84, according to last year's report, was..... \$42,582,231 71

From which is to be deducted, (being the amount of cheques, issued to pay for land and works, cancelled owing to the neglect or refusal of the persons in whose favour they were drawn to accept them.)..... 4.915 22

\$42,577,316 49

The expenditure charged to capital account for the year ended 30th June, 1885, is as follows:—

Halifax extension.....	\$ 16,580 01
Increased accommodation, St. John.....	116,732 68
Settlement of claims connected with the original construction of the Intercolonial Railway	56,117 34
For rolling stock.....	287,213 97
St. Charles Branch	257,125 71
Dartmouth Branch.....	164,456 75
Dalhousie Branch.....	52,723 78
Rivière du Loup Town Branch.....	46,256 01
Indian-Town Branch.....	48,497 48
Paspebiac Branch.....	4,167 21
Miscellaneous works.....	407 36
	<hr/>
	1,050,278 30
	<hr/>

Making the total cost up to 30th June, 1885..... \$43,627,594 79

Revenue Account.—

The gross earnings for the year were.....	\$2,368,153 65
The working expenses were.....	2,441,477 91

Excess of expenditure over earnings.....	\$73,324 26
--	-------------

The gross earnings, compared with those of the previous year, show an increase of.....	\$14,506 39
--	-------------

This increase was due to the through freight traffic.

The value of the stores in hand, including steel rails and fuel, at the end of the year, 1884-1885, was.....	\$723,784 27
--	--------------

The engine mileage, compared with that of last year, was :—

	Miles.
1884-85.....	4,836,927
1883-84.....	4,407,655
Increase.....	429,272

The car mileage, compared with that of last year, was :—

1884-85.....	47,591,193
1883-84.....	41,741,080
Increase.....	5,850,113

The train mileage, compared with that of last year, was :—

1884-85.....	3,992,506
1883-84.....	3,653,961
Increase.....	338,545

The working expenses per mile run by engines were :—

	Cents.
1883-84.....	53.19
1884-85.....	50.47
Decrease.....	2.72

The working expenses per mile run by trains were :—

1883-84.....	64.17
1884-85.....	61.15
Decrease.....	3.02

The gross tonnage carried was :—

	Tons.
1883-84	1,001,163
1884-85	970,069
Decrease.....	31,094

The total number of passengers carried was :—

1883-84	920,870
1884-85	914,785
Decrease.....	6,085

The road is thoroughly efficient.

Much of the expenditure has been made for improvements, which might properly have been charged to capital account in place of to working expenses, as has been done in the present case : the clearance of snow also proved a very heavy item of expenditure, the cost being \$76,000.

The substitution of steel rails of 67 pounds in place of 56 pounds to the yard is continued.

The erection and the repair of station buildings, wharves, bridges at various points have been carried out, and a large number of coal cars have been provided to meet the increasing requirements of the westward coal trade.

In the year 1883-84 there was an increase of 30,202 tons in the quantity of freight carried. During the past year, while the increase in through freight has been 58,000 tons, the gross tonnage carried is less than in the previous year. The local passenger traffic shows an increase of 8,000, but the through passenger traffic a decrease of 14,000

The quantity of goods landed at Halifax from ocean steamers for transport over the railway showed a considerable increase.

In the accompanying report of the Chief Engineer and General Manager of Government railways, (App. 5, p. 15) will be found a table showing the earnings and the amount of freight and number of the passengers carried since the opening of the road, namely, from the 1st of July, 1876.

From this it will be seen that the earnings, and the amount of freight traffic have more than doubled in the nine years of operation, while the passenger travel has increased by about one third.

The St. Charles Branch was opened for traffic on the 21st of July, 1884, with convenient station accommodation at Lévis, near the ferry communicating with

Quebec. The Quebec Central Railway now joins this branch at Harlaka, five miles from Lévis.

By the construction of the Dalhousie Branch, Dalhousie has become the point from which the steamer navigating the Baie des Chaleurs connects with the Intercolonial Railway.

The tender service, at Rimouski, for mail and passenger summer transport to and from ocean steamers, has been carried on successfully.

WINDSOR BRANCH.

The Windsor and Annapolis Railway Company are permitted to continue the operations of this line, which is 32 miles in length, the arrangement being that the company pay all charges in connection with the working, two-thirds of the gross receipts being allowed them for such purpose, the Government taking the remaining one-third and assuming all cost of maintenance.

The earnings and expenditure for the year ended the 30th June, 1885, were as follows:—

Gross earnings accruing to the Government.. .. .	\$24,451 35
Expenditure for maintenance of way and works.....	18,751 96
Balance.....	\$ 5,699 39

Government earnings, in comparison with those of the previous year:—

1884-1885.....	\$24,451 35
1883-1884.....	23,018 93
Increase.....	\$ 1,432 42

Expenditure in comparison with that of the previous year:—

1883-1884.....	\$22,140 86
1884-1885.....	18,751 96
Decrease.....	\$ 3,388 90

The road has been maintained in good working order.

EASTERN EXTENSION RAILWAY.

This line of railway is eighty miles long, extending from the Pictou Branch of the Intercolonial Railway, at New Glasgow to Port Mulgrave on the Strait of Canso, thence connecting with Cape Breton by means of a ferry.

The line with its equipment, was, on the 9th January, 1884, purchased by the Dominion Government from the Government of the Province of Nova Scotia, together with rights possessed by that Government in the Pictou Branch, between Truro and Pictou; also, the ferry built for the passage of the Strait of Canso.

The road is worked by a staff stationed at New Glasgow, directed by the chief officers of the Intercolonial.

The cost of the road and equipment amounted on the 30th June, 1884, to \$1,284,311.97.

No addition was made to capital account during the year.

The expenditure of the year amounted to..... \$78,273 65

The gross earnings..... 73,050 01

Loss..... 5,223 64

The road was well maintained and various improvements and repairs were effected.

Of the six branches of the Intercolonial recently placed under construction the following was the position at the end of the fiscal year :—

ST. CHARLES LOOP LINE.

This was completed and opened for traffic.

DALHOUSIE BRANCH.

This was completed and opened for traffic.

PASPEBIAC BRANCH.

The work on this branch has been confined to survey and location.

DARTMOUTH BRANCH.

By this branch, four miles in length, connection will be afforded between the Intercolonial Railway at Richmond and Dartmouth, on the north side of Halifax Harbour. The work was nearly completed.

RIVIÈRE DU LOUP TOWN BRANCH.

On this branch, about four miles long, connecting the Intercolonial Railway with the Rivière du Loup wharf, the track has been laid and ballasted.

INDIAN-TOWN BRANCH.

This branch of the Intercolonial extends from Derby Station, on that road, up the South-West Miramichi River to Indian-Town, a distance of thirteen miles. The work was placed under contract in September, 1884. The work is in progress.

PRINCE EDWARD ISLAND RAILWAY.

LENGTH OF LINE.

	Miles.
Tignish to Royalty Junction.....	113½
Royalty Junction to Mount Stewart.....	20
Mount Stewart to Georgetown.....	21
	— 154½

EXTENSIONS.

Cape Traverse Branch, County Line Station to Cape Traverse	13
Royalty Junction to Charlottetown.....	5
Mount Stewart to Souris.....	39
	— 57
	211½

Capital Account.—The total cost of the road and equipment chargeable to capital account at the close of fiscal year 1883-4 was.....\$3,654,356 00

Less refunds on account of previous expenditure..... 1,487 53

The expenditure charged to this account for the year ended the 30th of June, 1885, being the amount expended on the Cape Traverse Branch, was..... 78,444 09

Total expenditure on capital account to the 30th of June, 1885..... 3,731,312 56

Revenue Account.—The working expenses and receipts for the year ended 30th of June, 1885, were:—

Gross expenses.....\$ 211,207 01

Gross earnings..... 158,588 06

Excess of expenditure over earnings.....\$ 52,618 95

The gross earnings, compared with those of the previous year, were:—

1884-1885.....\$ 158,588 06

1883-1884..... 144,504 12

Increase.....\$ 14,083 94

The gross expenditure, compared with that of the previous year, was:—

1883-84..... \$236,428 13

1884-85..... 211,207 01

Decrease..... \$25,221 12

The engine mileage was :—

	Miles.
1883-84.....	291,760
1884-85.....	311,443
Increase.....	19,683

The train mileage was :—

1883-84.....	238,130
1884-85.....	249,878
Increase.....	11,748

The car mileage was :—

1883-84.....	1,208,423
1884-85.....	1,233,476
Increase.....	25,053

The above increases are due to the service on the Cape Traverse Branch.

The road and its equipments have been well maintained throughout the year.

CAPE TRAVERSE BRANCH.

This line was opened for traffic on the 22nd of January, 1885. Its object is to facilitate communication between the Prince Edward Island Railway and the Intercolonial. The branch leaves the island railway at County Line station and runs to Cape Traverse, a distance of thirteen miles. Across the strait to Cape Tormentine, on the mainland, the distance is nine miles. Here, by the line of the New Brunswick and Prince Edward Island Railway Company, forty miles in length, connection is made with the Intercolonial Railway at Sackville. In winter time the ice-boats land at Cape Traverse.

SUBSIDIZED LINES.

By the Acts of Parliament below specified, authority has been placed in the hands of the Governor in Council to grant, upon certain conditions, pecuniary aid towards the construction of various lines of railway throughout the Dominion, as follows, namely :—

By the Act 45 Vic., cap. 14 (1882).

No. 1. For a railway from Gravenhurst to Callander, both in the Province of Ontario, a subsidy not exceeding \$6,000 per mile, nor exceeding in the whole.....\$ 660,000

(NOTE.—Further subsidized by 46 Vic., ch. 25.)

2. For a railway from St. Raymond to Lake St. John, both in the Province of Quebec, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 384,000

(NOTE.—Further subsidized by 46 Vic., ch. 25, and 48-49 Vic., ch. 59.)

3. For a railway from a point on the Intercolonial Railway at Rivière du Loup or Rivière Ouelle, in the Province of Quebec, or between them, to Edmundston, in the Province of New Brunswick, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole 240,000

(NOTE.—Further subsidized by 48-49 Vic., ch. 58.)

4. For a railway from Oxford to New Glasgow, both in the Province of Nova Scotia, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 224,000

(NOTE.—Further subsidized as part of a line to Sydney or Louisburg by 47 Vic., ch. 8.)

The said subsidies to be granted to such companies as shall be approved by the Governor in Council, as having established, to his satisfaction, their ability to complete the said railways respectively, within a reasonable time, to be fixed by Order in Council, and according to descriptions and specifications to be approved by the Governor in Council on the report of the Minister of Railways and Canals, and specified in a agreement to be made by the company with the Government, and which the Government is empowered to make, and to be payable out of the Consolidated Revenue Fund of Canada, by instalments on the completion of each ten miles of railway, proportionate to the value of the portion so completed in comparison with the whole work undertaken, such proportion to be established by the report of the said Minister; provided always, that the granting of such bonuses or subsidies, shall be subject to such conditions for securing such running powers or traffic arrangements and other rights, as will afford all reasonable facilities and equal mileage rates to all railways connecting therewith, as the Governor in Council may determine.

5. By the special Act 45th Vic., ch. 55 (1882), a subsidy was authorized in favor of "The Chignecto Marine Transport Railway Company," provided that they construct and thereafter maintain and operate a ship railway, to be approved by the Government, across the Isthmus of Chignecto from the Gulf of St. Lawrence to the Bay of Fundy, per year for twenty-five years..... \$150,000

By the Act 46 Vic. cap. 25, (1883):—

No. 6. To the Baie des Chaleurs Railway Company, for 100 miles of their railway, from Matapediac, on the Intercolonial Railway, to Paspebiac, in the Province of Quebec, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... \$320,000

7. To the Caraquet Railway Company for 36 miles of their railway, from a point near Bathurst to Caraquet, in the Province of New Brunswick, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 115,200

(NOTE.—Further subsidized by 47 Vic., ch. 8.)

8. To the Gatineau Valley Railway Company, for the first 50 mile section of their railway, from Hull Station, in the Province of Quebec, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 160,000

(NOTE.—Cancelled by 48-49 Vic., ch. 59.)

9. To the Great American and European Short Line Railway Company, for 80 miles of their railway from Canso to Louisburg or Sydney, in the Province of Nova Scotia, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole. 256,000

(NOTE.—This was amended by the Act 47 Vic., cap. 8, sec. 2, the words "To the Great American and European Short Line Railway Company" being struck out, and the word "the" being inserted for the word "their" and the words and figures "for 80 miles of" being omitted. Further subsidized by 47 Vic., ch. 8, as part of line from Oxford Station to Sydney or Louisburg.)

10. To the International Railway Company, for 49 miles of their railway from Sherbrooke, in the Province of Quebec, to the International boundary line, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 156,800

In connection with the extension of this road through Maine to connect with New Brunswick, at or near Vanceborough or south of that point.

11. To the Northern and Western Railway Company, for 32 miles of their railway, from the Intercolonial Railway, near the Miramichi, to Moran's, near Demphy Village, in the Province of New Brunswick, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 102,400

(NOTE.—Cancelled by 47 Vic., ch. 8.)

- 12.** To the Montreal and Western Railway Company, for the first 50 miles section of their railway, out of St. Jérôme, in the Province of Quebec, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 160,000

(NOTE.—*Further subsidized by 47 Vic., ch. 8.*)

- 13.** To the Napanee, Tamworth and Quebec Railway Company, for 28 miles of their railway, from Napanee to Tamworth, in the Province of Ontario, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 89,600

- 14.** To the Quebec and Lake St. John Railway Company, for 25 miles of their railway, from St. Raymond to Lake St. John, in the Province of Quebec, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 80,000
In addition to the subsidy granted by the Act forty-fifth Victoria, chapter fourteen.....

(NOTE.—*Further subsidized by the Act 48-49 Vic., ch. 59.*)

- 15.** For a railway from the Intercolonial Railway at Petitcodiac to Havelock Corner, in the Province of New Brunswick, 12 miles, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 38,400

- 16.** For a railway from Gravenhurst to Callander, 110 miles, a subsidy not exceeding \$6,000 per mile, nor exceeding in the whole..... 660,000
In addition to the subsidy granted by the Act forty-fifth Victoria, chapter fourteen.

“The nine subsidies first mentioned to be granted to the companies hereinbefore named respectively; and the two subsidies last mentioned to be granted to such companies as shall be approved by the Governor in Council as having established to his satisfaction their ability to complete the said railways, respectively; and all the eleven lines above mentioned, and also all the lines of railway in respect of which it is provided by the Act forty-fifth Victoria chapter fourteen, that subsidies may be granted, shall be commenced within two years from the first day of July next, and completed within a reasonable time, not to exceed four years from and after the passing of this Act, to be fixed by Order in Council, and according to descriptions and specifications to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in an agreement to be made by each company with the Government, and which the Government is empowered to make; and all the said

subsidies authorized by this Act, respectively, to be paid out of the Consolidated Revenue Fund of Canada by instalments, on the completion of each section of not less than ten miles of railway, proportionate to the value of the portion so completed in comparison with the whole work undertaken, to be established by the report of the said Minister: Provided always, that the granting of such subsidies shall be subject to such conditions for securing such running powers or traffic arrangements, and other rights, as will afford all reasonable facilities and equal mileage rates, to all railways connecting with those so subsidized, as the Governor in Council may determine."

17. By the special Act 46 Vic., ch. 26, an advance was authorized in favor of the "St. John Bridge and Railway Extension Company," to enable them to build a railway bridge across the River St. John, N.B., with railway connection with the Intercolonial, such advance, to be secured by a mortgage on their entire property, not to exceed 80 per cent. of the expenditure on the work, nor a total sum of\$ 500,000

By the Act 47 Vic., cap. 8 (1884),

18. To the Government of the Province of Quebec, in consideration of their having constructed the railway from Quebec to Ottawa, forming a connecting line between the Atlantic and Pacific coasts *via* the Intercolonial and Canadian Pacific Railway, and being as such a work of national and not merely Provincial utility, a subsidy not exceeding \$6,000 per mile for the portion between Quebec and Montreal, 150 miles, nor exceeding in the whole.....\$ 954,000

19. And for the portion between Montreal and Ottawa, 120 miles, \$12,000 per mile, nor exceeding in the whole 1,440,000

20. For the construction of a line of railway connecting Montreal with the harbours of St. John and Halifax by the shortest and best practicable route, after the report of competent engineers, a subsidy not exceeding \$170,000 per annum, for fifteen years, or a guarantee of a like sum for a like period as interest on bonds of the company undertaking the work. Per year for 15 years..... 170,000

(NOTE.—Further subsidized by the Act 48-49 Vic., ch. 58, sec. 1, sub-sec. 2.)

- 21.** For the construction of a line of railway from Oxford Station, on the Intercolonial Railway, to Sydney or Louisburg, a subsidy not exceeding \$30,000 per annum for fifteen years, or a guarantee of a like sum for a like period as interest on the bonds of the company undertaking the work, in addition to the subsidies previously granted, and also a lease or transfer to such company of the Eastern Extension Railway, from New Glasgow to Canso, with its present, equipment. Per year for 15 years..... 30,000
- 22.** To the Quebec Central Railway Company, for a line of railway from Beauce Junction to the International boundary line, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 211,200
- 23.** For the extension of the Canadian Pacific Railway, from its terminus at St. Martin's Junction, near Montreal, or some other point on the Canadian Pacific Railway, to the harbour of Quebec, in such manner as may be approved by the Governor in Council, a subsidy not exceeding \$6,000 per mile, nor exceeding in the whole..... 960,000

(NOTE.—Further subsidized by the Act 48-49 Vic., ch. 58, sec. 2. See also, below subsidy for line between Jacques Cartier Junction and St. Martin's Junction, both subsidies being united by the Act last named.)

- 24.** To the Irondale, Bancroft and Ottawa Railway Company, for a line of railway from the Victoria branch of the Midland Railway, to the village of Bancroft, in the township of Dunganon, county of Hastings, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole. 160,000
- 25.** To the Pontiac Pacific Junction Railway for a line of railway from Hull or Aylmer to Pembroke, provided the Ottawa river is crossed at some point not east of Lapasse, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 272,000

- 26.** To the Gatineau Railway Company, for a line of railway from Kazuabazua to Le Desert, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 160,000

(NOTE.—Cancelled by Act 48-49 Vic., ch. 59.)

- 27.** To the Napanee, Tamworth and Quebec Railway Company, for a line of railway from Tamworth to Bogart and Bridgewater, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 70,400

(NOTE.—Cancelled by Act 48-49 Vic., ch. 59.)

- 28.** To the Montreal and Western Railway Company, for a line of railway from the end of the line subsidized in the now last Session of Parliament, towards Le Desert, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 160,000

- 29.** To the Northern and Western Railway Company, for a line of railway from Fredericton to the Miramichi River, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole (instead of the subsidy proposed in 1883)..... 128,000

(NOTE.—Further subsidized by 48-49 Vic., ch. 59.)

- 30.** To the Erie and Huron Railway Company, for a line of railway from Wallaceburg to Sarnia, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 96,000

- 31.** To the Ontario and Pacific Railway Company, for a line of railway from Cornwall to Perth, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole 262,400

- 32.** To the Kingston and Pembroke Railway Company, for a line of railway from Mississipi to Renfrew, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 48,000

- 33.** To the Great Northern Railway Company, for that portion of their railway between St. Jerome and New Glasgow, in the county of Terrebonne, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 32,000

- 34.** For a line of railway and bridge between the Jacques Cartier Union Railway Junction with the Canadian Pacific Railway and St. Martin's Junction, connecting the Jacques Cartier Union Railway with the North Shore Railway proper, a subsidy not exceeding in the whole... 200,000

(NOTE.—See Act 48-49 Vic., ch. 58, sec. 2.)

- 35.** For a line of railway from Richibucto to St. Louis, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 22,400

- 36.** For a line of railway from Hopewell to Alma, in the Province of New Brunswick, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 51,200

- 37.** For a line of railway from St. Andrews to Lachute, in the county of Argenteuil, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 22,400

- 38.** For a line of railway from the Grand Piles, on the River St. Maurice, to Lake Edward, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 217,600

(NOTE.—Cancelled by 48-49 Vic., ch. 59.)

- 39.** For a line of railway from Annapolis to Digby, in the Province of Nova Scotia, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole 64,000

- 40.** For a line of the Central Railway, from the head of Grand Lake to the Intercolonial Railway, between Sussex and St. John, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole 128,000

- 41.** To the Caraquet Railway Company, for the extension of their line of railway from Caraquet to Shippigan Harbour, in the Province of New Brunswick, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 76,800

(NOTE.—In addition to subsidy granted by 46 Vic., ch. 25.)

- 42.** For a branch of the Intercolonial Railway, from Metapediac eastward, towards Paspédiac, twenty miles, in the Province of Quebec, a sum not exceeding in the whole 300,000

- 43.** For a branch of the Intercolonial Railway, from
Derby Station to Indian-town, fourteen miles,
a sum not exceeding in the whole..... 140,000

“The subsidies hereinbefore mentioned as to be granted to companies named for that purpose, shall be granted to such companies, respectively: the other subsidies shall be granted to such companies as shall be approved by the Governor in Council as having established, to his satisfaction, their ability to construct and complete the said railways, respectively. All the lines for the construction of which subsidies are granted shall be commenced within two years from the first day of July next and completed within a reasonable time, not to exceed four years, to be fixed by Order in Council, except the line mentioned in the fourth section of this Act, which shall be commenced within one year, and shall also be constructed according to descriptions and specifications and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in an agreement to be made in each case by the company with the Government, and which the Government is hereby empowered to make; the location also of every such line of railway shall be subject to the approval of the Governor in Council; and all the said subsidies respectively shall be payable out of the Consolidated Revenue Fund of Canada, by instalments on the completion of each section of the railway of not less than ten miles, proportionate to the value of the portion so completed, in comparison with that of the whole work undertaken, to be established by the report of the said Minister. The subsidies to the Province of Quebec shall be capitalized and the interest shall be payable at such time and in such manner as the Government of Canada shall agree upon with the Government of the said Province. The two subsidies last mentioned in the list are for works to be constructed by the Government of Canada.

“Provided always, that the granting of such subsidies to the companies mentioned, respectively, shall be subject to such conditions for securing such running powers or traffic arrangements and other rights, as will afford all reasonable facilities and equal mileage rates to all railways connecting with those so subsidized as the Governor in Council may determine.”

By the Act 48-49 Vic., ch. 59, (1885.)

- 44.** To the Ottawa, Waddington and New York Railway
and Bridge Company, for a line of railway from
Ottawa to Waddington, a subsidy not exceeding
\$3,200 per mile, nor exceeding in the whole..... \$166,400
- 45.** To the New Brunswick and Prince Edward Island
Railway Company, for a line of railway from
Sackville to the Straits of Northumberland, at or
near Cape Tormentine, a subsidy not exceeding
\$3,200 per mile, nor exceeding in the whole.... 118,400

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| 46. To the Montreal and Sorel Railway Company, for a line of railway from St. Lambert to Sorel, a subsidy not exceeding \$1,600 per mile, nor exceeding in the whole..... | 72,000 |
| 47. To the Brockville, Westport and Sault St. Marie Railway Company, for a line of railway from Brockville to Westport, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... | 123,000 |
| 48. To the Quebec and Lake St. John Railway Company, for a line of railway from its junction on the North Shore Railway to St. Raymond, upon condition of the Company extending their road to a point 50 miles north of St. Raymond, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... | 96,000 |

[NOTE.—In addition to the subsidy granted by the Acts 45 Vic., ch. 14, and 46 Vic. ch. 25.]

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| 49. To the Northern and Western Railway Company, for a line of railway from the northern end of the 40 miles subsidized between Fredericton and the Miramichi River by 47 Victoria, chapter 8, to Boiestown, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... | 19,200 |
| 50. To the Montreal and Champlain Junction Railway Company, for a line of railway from Brosseau's to Dundee, a subsidy not exceeding \$500 per mile, nor exceeding in the whole..... | 30,000 |
| 51. To the Thunder Bay Colonization Railway Company, for a line of railway from the Murillo station of the Canadian Pacific Railway to the east end of Whitefish Lake, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... | 92,000 |
| 52. To the Central Ontario Railway Company, for a line of railway from Coe Hill or Rathburn, to Bancroft, a subsidy not exceeding \$3,200 per mile nor exceeding in the whole..... | 64,000 |
| 53. To the Belleville and North Hastings Railway Company, for a line of railway from the Village of Madoc to the junction with the Central Ontario Railway at Eldorado, a subsidy not exceeding \$1,500 per mile, nor exceeding in the whole..... | 10,500 |

54. For a line of railway from Long Sault to the foot of Lake Temiscamingue, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 25,600
55. For a line of railway from a point on the Canada Southern Railway near Comber, to Lake Erie, at or near the Village of Leamington, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 44,800
56. To the Napanee, Tamworth and Quebec Railway Company, for a line of railway from Tamworth towards Bogart and Bridgewater, 16 miles, in lieu of the subsidy granted by 47 Victoria, chap. 8, a subsidy of..... 70,000
57. To the Gatineau Railway Company, for a line of railway from Hull station towards Le Desert, a distance of 62 miles, in lieu of the subsidies granted by 46 Victoria, chapter 25, and 47 Victoria, chapter 8, a subsidy of..... 320,000
58. For a line of railway from the Grand Piles, on the River St. Maurice, to its junction with the Lake St. John Railway, a distance of about 50 miles, in lieu of the subsidy granted by 47 Victoria, chapter 8, for a line of railway from the Grand Piles, on the River St. Maurice to Lake Edward, a subsidy of..... 217,600
59. To the Canada Atlantic Railway Company, for a line of railway from Valleyfield to a point one and a-half miles west of Johnson's, a subsidy not exceeding \$1,600 per mile, and from one and a-half miles west of Johnson's to Lacolle; also from the present terminus at Ottawa to the Chaudière Falls, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 96,000
60. For a line of railway from Indiantown *via* the Michichi Valley, to its junction with the Northern and Western Railway at or near Boiestown, a subsidy not exceeding \$3,200 per mile, nor exceeding in the whole..... 140,800

"The subsidies hereinbefore mentioned as to be granted to companies named or that purpose, shall be granted to such companies, respectively: The other subsidies shall be granted to such companies as shall be approved by the Governor

in Council as having established to his satisfaction their ability to construct and complete the said railways, respectively. All the lines for the construction of which subsidies are granted shall be commenced within two years from the first day of August next, and completed within a reasonable time, not to exceed four years, to be fixed by Order in Council; and shall also be constructed according to descriptions and specifications and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in an agreement to be made in each case by the Company with the Government, and which the Government is hereby empowered to make; the location, also, of every such line of railway shall be subject to the approval of the Governor in Council; and all the said subsidies, respectively, shall be payable out of the Consolidated Revenue Fund of Canada, by instalments, on the completion of each section of the railway of not less than ten miles, proportionate to the value of the portion so completed in comparison with that of the whole work undertaken, to be established by the report of the said Minister:

Provided always, that the granting of such subsidies to the companies mentioned, respectively, shall be subject to such conditions for securing such running powers or traffic arrangements and other rights, as will afford all reasonable facilities and equal mileage rates to all railways connecting with those so subsidized, as the Governor in Council may determine."

By the Act 43-49 Vic., ch. 58, the following subsidies were authorized:—

- 61.** "For a railway from a point on the Intercolonial Railway at Rivière du Loup or Rivière Ouelle, in the Province of Quebec, to Edmunston, in the Province of New Brunswick, a subsidy not exceeding two thousand eight hundred dollars per mile for seventy-five miles, and six thousand dollars per mile for eight miles, nor exceeding in the whole two hundred and fifty-eight thousand dollars; the said subsidy to be in addition to the subsidy authorized to be granted in aid of the construction of the said railway by the Act forty-fifth Victoria, chapter fourteen, and constituting, with the subsidy so authorized, a subsidy not exceeding in the whole four hundred and ninety-eight thousand dollars, and to be granted for the said railway upon the terms and conditions specified in the said Act, and payable out of the Consolidated Revenue Fund of Canada; and for the purpose of incorporating the persons undertaking the construction of the said railway

and those who shall be associated with them in the undertaking, the Governor may grant to them, under such corporate name as he shall deem expedient, a charter conferring upon them the franchises, privileges and powers requisite for the said purposes, which shall be similar to such of the franchises, privileges and powers granted to railway companies during the present Session as the Governor shall deem most useful or appropriate to the said undertaking; and such charter, being published in the *Canada Gazette*, with any Order or Orders in Council relating to it, shall have force and effect as if it were an Act of the Parliament of Canada" (*additional*)..... \$258,000

62 " For a line of railway from the south bank of the St. Lawrence River, opposite or near Montreal, to the harbors of St. Andrews, St. John and Halifax, *via* Sherbrooke, Moosehead Lake, Mattawamkeag, Harvey, Fredericton and Salisbury, a subsidy not exceeding eighty thousand dollars per annum for twenty years, forming in the whole, together with the subsidy authorized by the Act forty-seventh Victoria, chapter eight, for a line of railway connecting Montreal with the said harbors of St. John and Halifax by the shortest and best practicable route, which the line above described is found to be, a subsidy not exceeding two hundred and fifty thousand dollars per annum, the whole of which shall be paid in aid of the construction of such line of railway for a period of twenty years, or a guarantee of a like sum for a like period as interest on the bonds of the company undertaking the work: the said subsidy to be so granted upon the terms and conditions of, and payable out of the Consolidated Revenue Fund in the manner specified in the said last mentioned Act in respect of the subsidy thereby authorized in aid of the said line of railway." Per year for twenty years (*additional*.) (See No. 20). 80,000

63. "The Governor in Council may grant a further subsidy as an aid towards procuring free access as hereinafter described for the trains and traffic of the

Canadian Pacific Railway Company from St. Martin's Junction, near Montreal, or from some other point on their railway to be selected by the said company, to the harbor of Quebec, in such manner as shall be approved by the Governor in Council, that is to say: an additional subsidy not exceeding three hundred and forty thousand dollars, constituting, together with the subsidy authorized by the said last mentioned Act to aid in procuring the extension of the Canadian Pacific Railway to Quebec, and the subsidy also thereby authorized to aid in constructing a line connecting the Canadian Pacific Railway at the Jacques Cartier Union Junction with the North Shore Railway proper (which subsidies shall be applicable to the said first mentioned purpose) a sum not exceeding in the whole the sum of one million five hundred thousand dollars, payable out of the Consolidated Revenue Fund of Canada" (*additional*)..... \$340,000

The said Act further provided as follows in relation to this matter:—

"If it should be expedient so to do in order to facilitate such access, the Governor in Council may acquire the North Shore Railway, and may apply the said sum of one million five hundred thousand dollars, or any part thereof, in aid of such acquisition; and upon such acquisition may transfer and convey or lease the said railway to the Canadian Pacific Railway Company, subject to such obligations as the Government shall have assumed in acquiring it."

GOVERNMENT ACTION AS TO SUBSIDIZED LINES.

With regard to the above enumerated lines of railway, the following represents the action taken and the progress made in so far as the Dominion Government has cognizance or concern, only those lines and companies being mentioned as to which definite steps, other than merely preliminary, have been taken towards securing the subsidy. Information has been brought down to the 31st of December, 1885.

Gravenhurst to Callander. (Northern and Pacific Junction Railway Company.) (See Nos. 1 and 16.) For the purpose of affording to the Province of Ontario the advantage of direct railway communication with the North-West it was necessary that a road should be built connecting the Canadian Pacific Railway with the existing railways of Ontario, and such a line was subsidized by the Acts of 1882 and 1883, to the extent of \$12,000 a mile, for a distance of 110 miles, or

total of \$1,320,000. It extends from the Canadian Pacific Railway at the River La Vase, east of Lake Nipissing, south, to the village of Gravenhurst, a distance of $111\frac{1}{4}$ miles, there connecting with the railway system of Ontario. Under the authority of an Order in Council, dated the 10th of April, 1884, a contract was entered into on the 12th of April, 1884, with the Northern and Pacific Junction Railway Company (formerly the Northern and North-Western and Sault Ste. Marie Railway Company) for the construction of this line, the same to be completed by the 1st of May, 1886. The works have made steady progress, and up to the 31st of December, 1885, the track had been laid and the road inspected for a total distance of 90 miles. The total amount of the subsidy paid over up to that date was \$1,032,910.

Quebec and Lake St. John Railway Company. (Nos. 2, 14 and 48.) By the Subsidy Act of 1882 a subsidy of \$384,000 was granted for a line from St. Raymond to Lake St. John. By the Act of 1883, the Quebec and Lake St. John Railway Company, engaged in the work of constructing this line, were permitted to receive a further subsidy of \$80,000. And by the Act of 1885, a subsidy of \$96,000 was authorized for a line extending from the point of their junction with the North Shore Railway to St. Raymond, conditionally upon the construction of their line to a point 50 miles north of St. Raymond. An agreement was duly entered into on the 4th of September, 1883, in respect of the two subsidies first named, under which this line is to be completed by the 25th of May, 1887, the portion up to Lake Edward to be completed by the 31st of December, 1885.

Up to the 31st of December, 1885, the road had been completed and inspected for a total distance of 50 miles north of St. Raymond, (and beyond Lake Edward). The subsidy has been paid for 40 miles of this distance, amounting to \$135,240.

Montreal and European Short Line Railway Company (formerly the "Great American and European Short Line Railway Company.")—See No. 4.—In 1882 a subsidy was voted by Parliament to the extent of \$224,000, for the construction of a line about seventy miles long, between Oxford, about thirty miles east of Amherst, and New Glasgow, N.S.

Under date the 28th July, 1882, a contract was entered into with the above named company for the building of this road, the work to be completed by the 1st of January, 1884.

The company commenced work and continued until the summer of 1883, when they ceased operations. The contract, accordingly, became null and void. As the subsidy was to be paid upon the completion of each ten mile section, and as no one section was completed, no portion of the subsidy was paid. To meet the claims for work done and unpaid for by the company, and for acquiring rights therein, the sum of \$125,000 was voted by Parliament last Session to be a first charge on the subsidy, and under an Order in Council of the 14th August, 1885, a

special commissioner was appointed, through whom the majority of these claims have been settled.

The Caraqueet Railway Company. (See Nos. 7 and 41.)—Under an Order in Council, dated the 6th of May, 1884, the subsidies authorized by Parliament in 1883 and 1884, for the road of this company between Bathurst, on the Intercolonial Railway, and Shippegan Harbour, amounting to \$192,000, have been granted to them. An agreement has been duly executed under date the 20th of January, 1885, for the construction of the line, the portion from Caraqueet to Bathurst to be completed by the 25th May, 1887, and the whole road by the 1st of July, 1888, the total amount of the subsidy paid is \$105,200, up to the 31st of December, 1885.

International Railway Company. (See No. 10.)—In 1883 Parliament granted a subsidy of \$156,800 to this company for forty-nine miles of their railway, between Sherbrooke and the International boundary line, the object being to enable them to complete their road and lay steel rails. They entered into contract on the 20th of July, 1883, and under successive Orders in Council, the last of which was dated the 21st of December, 1883, they have been paid a total sum of 144,000 upon a distance of forty-five miles.

Short Line. (See Nos. 20 and 62.)—As was explained in the report presented last year, surveys were made in 1884, under the authority of an Order in Council of the 21st of June of that year, with a view to ascertaining, in accordance with the understanding had with Parliament, the shortest and best practicable route affording direct railway connection between Montreal and the Canadian Atlantic ports. A list of the several surveys made was given in that report.

Last session the matter having been fully discussed in the House, the conclusion arrived at was expressed in the following Act, 48-49 Vic. ch. 58.

“For a line of railway from the south bank of the St. Lawrence River opposite or near Montreal to the harbors of St. Andrews, St. John and Halifax, *via* Sherbrooke, Moosehead Lake, Mettawamkeag, Harvey, Fredericton and Salisbury, a subsidy not exceeding eighty thousand dollars per annum for twenty years, forming in the whole, together with the subsidy authorized by the Act forty-seventh Victoria, chapter eight, for a line of railway connecting Montreal with the said harbors of St. John and Halifax by the shortest and best practicable route, which the line above described is found to be, a subsidy not exceeding two hundred and fifty thousand dollars per annum, the whole of which shall be paid in aid of the construction of such line of railway for a period of twenty years, or a guarantee of a like sum for a like period as interest on the bonds of the company undertaking the work: the said subsidy to be so granted upon the terms and conditions of, and payable out of the Consolidated Revenue Fund in the manner specified in the said last mentioned Act in respect of the subsidy thereby authorized in aid of the said line of railway.”

An application having been made for the said subsidies by the International Railway Company and they having agreed to conform to the necessary conditions and requirements, and having evidenced their ability to construct and operate the road, entry into contract with them was authorized by an Order in Council of the 19th of November, 1885, and such contract was signed by their president on the 14th of December, they undertaking to complete a line from a point on the south bank of the St. Lawrence at or near Caughnawaga to connect with the Intercolonial Railway at Moncton by the 1st of July, 1889.

Northern and Western Railway Company. (See Nos. 11, 29, 42 and 60.)—In 1883 Parliament authorized the grant of a subsidy to this company of \$102,400, towards the construction of thirty-two miles of their railway, from the Intercolonial Railway, near the Miramichi, to Moran's, near Demphy Village, N. B. This action was suggested to the House, in view of an application made for aid for a line extending from the Intercolonial Railway at the crossing of the Miramichi River, and running down the Valley of the Nashwack, thence to Fredericton, as to which the Government engineer had reported that a portion only, up to Boiestown, sixty miles, would be a feeder to the Intercolonial. In 1884, no work having meantime been commenced, Parliament voted money for the construction, by the Government, of the portion of this distance, extending from Derby Station, on the Intercolonial Railway, to Indiantown, and authorized the grant to this company of a subsidy of \$128,000 in aid of their railway, from Fredericton to the Miramichi, "instead of the subsidy proposed in 1883."

The contract for the construction of this subsidized line, from Fredericton to the Miramichi, forty miles in length, was signed on the 24th of December, 1884, an Order in Council on the 16th of that month having given approval to the draft of such contract. The date fixed for completion was the 1st of July, 1888.

The location for the whole distance, 40 miles, has been approved of by Orders in Council, and the road having been duly completed and inspected, the whole of the subsidy \$128,000 has been paid under Orders in Council, the last of which was dated the 16th of October, 1885.

At the last Session of Parliament, a subsidy in favour of this Company was authorized to the extent of \$19,200 for a continuance of their line northwards from the Miramichi River to Boiestown, and under the authority of an Order in Council of the 6th of November, 1885, a contract was made with the Company for the work, on the 26th of that month. The location was approved by an Order in Council of the 27th. The line, 6 miles in length, is to be completed by the 1st of November, 1886.

Parliament also, at its last Session, authorized the grant of a subsidy to the extent of \$140,800 in aid of the construction of a line of railway from Indiantown,

vid the Miramichi Valley to its junction with the Northern and Western Railway at or near Boiestown.

The Northern and Western Railway Co. having applied for the work, they were accepted, and a contract was made with them on the 26th of November, 1885, as authorized by an Order in Council of the 7th of that month, the location for the whole distance, about 50 miles, being approved of by an Order of the 27th. The line is to be completed by the 1st of August, 1888.

The portion connecting Indiantown with the Intercolonial Railway is being executed by the Government as a branch of its main road. The execution of the entire scheme as above described will afford direct communication between Fredericton and the Intercolonial Railway at Derby, the distance being about 109 miles.

Napanee, Tamworth and Quebec Railway Company. (See Nos. 13, 27 and 56.) In 1883, Parliament authorized a subsidy of \$89,600 to this Company, covering their road from Napanee to Tamworth.

As was stated in the Report of last year, a contract was entered into with the Company for this work, and upon its completion, inspection, and approval, the balance of the subsidy then due was paid under an Order in Council of the 28th of July, 1884.

In the Session of that year Parliament authorized the grant of a further subsidy not exceeding \$3,200 a mile or a total of \$70,400, for an extension of this Company's road from Tamworth to Bogart and Bridgewater. Last Session, however, in substitution for this subsidy, Parliament authorized the grant to the Company of a subsidy of \$70,000 for a line "from Tamworth towards Bogart and Bridgewater, 16 miles." No contract has yet been entered into.

Rivière du Loup and Rivière Ouelle to Edmunston. (See Nos. 2 and 61.) Towards the construction of a line from Rivière du Loup and Rivière Ouelle, or from some point between them to Edmunston, Parliament, in 1882, voted a subsidy of \$240,000, and by the Act 48-49 Vic., ch. 58, a further subsidy, not exceeding \$258,000, was voted, for a line from Rivière du Loup or Rivière Ouelle, making a total in aid of this work of \$498,000.

Under express provisions of this Act a charter was granted by an Order in Council of the 3rd of October last to certain persons constituting "The Temiscouata Railway Company" their object being to build the said road, and such charter for a line from Rivière du Loup to Edmunston, being published in the *Canada Gazette* of the 10th of that month has force and effect as if an Act of Parliament. No contract has yet been entered into with the company for the work in question.

Quebec Central Railway Company. (See No. 22). This company was subsidized in 1884 to the extent of \$211,200, in aid of the construction of sixty-six miles of their railway, from Beauce Junction to the International boundary.

Under the authority of an Order in Council, dated the 2nd of August, 1884, a contract was made with the company on that date.

Up to the present date the location of the first 33 miles has been approved of. The amount of the subsidy so far paid is \$60,342.

Pontiac Pacific Junction Railway Company. (See No. 25). This line was subsidized by Parliament in 1884, to the extent of \$3,200 a mile, not exceeding \$272,000.

This line will start from Aylmer or Hull, Que., running to Pembroke, and crossing the River Ottawa west of Lapasse.

Under authority of an Order in Council, dated the 12th of December, 1884, a contract, dated the 22nd of that month, was made with this company, for the building of the subsidized line, the first twenty-seven miles to be completed by the 1st September, 1885, (extended to 15th of December by Order in Council of the 13th of August, 1885,) the second twenty-seven miles by the 1st of July, 1886, and the whole road by the 1st of July, 1887.

Under authority of Orders in Council payments have been made to the extent of \$49,090, covering 21 miles. On the 24th of December, 1885, the company applied for the inspection of a further section of 10 miles.

Kingston and Pembroke Railway Company. (See No. 32). The subsidy granted to this company in 1884 was for the fifteen miles of their road between Mississippi and Renfrew, the amount not exceeding \$48,000.

The company completed the whole road between Kingston and Renfrew before the close of the year 1884, and upon their application the line has been duly inspected, with a view to its being opened for traffic, as required by the Consolidated Railway Act. A contract was duly made with the company on the 5th of March, 1885, under the authority of an Order in Council of the 28th of February, and the subsidized road having been inspected the subsidy has been paid, under an Order in Council of the 20th of March, 1885.

St. John Bridge and Railway Extension Company. (See No. 17). By an Act passed in 1883, 46 Vic., cap. 26, authority was given for the advance to the above named company of a sum not exceeding \$500,000, to aid them in the construction of their proposed bridge over the St. John River, security being taken for the said advance in the shape of a mortgage on the company's property.

The plans and specifications of the bridge having been approved of by an Order in Council, a mortgage was executed on the 10th of December, 1883, and the company, up to the 31st of December, 1885, have received the sum of \$425,500, representing 80 per cent. of the expenditure in connection with the work, payments being made under the authority of Orders in Council, and after inspection of the work done. The bridge itself was completed and formally opened on the 30th of September, 1885.

Esquimalt and Nanaimo Railway Company.—Under the authority of Orders in Council passed in June, 1883, the Honorable Sir Alexander Campbell, during the summer of that year, visited British Columbia, with a view to the settlement of matters in abeyance between the Provincial and Dominion Governments, and arrangements were provisionally entered into by him in respect of the building of a line of railway between Esquimalt and Nanaimo by a company, to be subsidized by the Dominion Government.

The arrangements in question were conditional upon approval being accorded by the Legislature of the Province of British Columbia, and by the Parliament of Canada. Subject to such approval, their adoption was sanctioned by an Order in Council of the 27th September, 1883.

By an Act of the Provincial Legislature, sanctioned on the 19th December, 1883, but known as Act "47 Vic., cap. 14," and by an Act of the Dominion Parliament, 47 Vic., cap. 6, such approval has been accorded.

These arrangements were expressed in articles of agreement dated the 20th of August, 1883. They comprised the grant of a subsidy in money of \$750,000, together with the land in Vancouver Island granted by the Province to the Crown for the purposes of railway construction; materials for construction of the railway and telegraph to be admitted free of duty. The whole line between Esquimalt and Nanaimo is to be completed by the 10th of June, 1887.

The company, duly constituted under the provisions of the Act, have furnished plans, &c., of the location of the seventy miles of their line, starting from Nanaimo, and the same have been approved by Orders in Council the last dated the 3rd of February, 1885, no portion of the subsidy has been paid up to the 31st of December, 1885.

Great Northern Railway Company. (See No. 33). By the Act 47 Vic., cap. 8, a subsidy to the extent of \$3,200 a mile, was authorized in favour of this company for the portion of their line between St. Jerome and New Glasgow, Que. A contract was entered into with the company for the work on the 14th of February, 1885, the line to be completed by the 1st of July, 1885. The line being completed and inspected, payment was made to the company of their subsidy for

the distance 7·84 miles, or a total of \$25,938, under an Order in Council of the 2nd of March, 1885.

St. Louis and Richibucto Railway Company.—(See No. 35). By the Act 47 Vic., cap. 8, a subsidy was authorized for a line between Richibucto and St. Louis, namely, \$3,200 a mile or \$22,400. Under authority of an Order in Council of the 20th March, 1885, a contract was made with the company, and upon the completion and inspection of the work an Order in Council was passed on the 17th of December, 1885, under which the full amount of the subsidy has been paid.

Elgin, Petitediac and Havelock Railway Company.—(See No. 15). By the Act 46, Vic., cap. 25, a subsidy of \$38,400 was authorized for the construction of a railway from the Intercolonial Railway at Petitediac to Havelock Corner. The above named company having made application, a contract was entered into with them on the 25th of May, 1885, under the authority of an Order in Council of the 16th of that month. The road having been completed and inspected an Order in Council was passed on the 16th of November, under which the whole amount of the subsidy has been paid.

Erie and Huron Railway Company.—(See No. 30). By the Act 47 Vic., cap. 8, authority was given for the grant of a subsidy not exceeding \$96,000 to this company for a line from Wallaceburgh to Sarnia, and a contract was entered into with them on the 27th of August, 1885, under an Order in Council of the 6th of that month. No portion of the subsidy has been paid up to the present time.

Montreal and Sorel Railway Company.—See No. 46). By the Act 48·49 Vic., cap. 59, a subsidy not exceeding \$72,000 was authorized to be granted to this company for a line from St. Lambert to Sorel. Under an Order in Council of the 2nd October, 1885, a contract was made with the company on the 14th, and under the authority of Orders in Council, the last dated on 25th of November, the company has received \$47,325 of its subsidy.

Montreal and Champlain Junction Railway Company.—(See No. 50.) By the Act 48·49 Vic., cap. 59, a subsidy was authorized to be granted to this company for a line from Brosseau's to Dundee, not exceeding \$30,000. An Order in Council was passed on the 25th of September, under which, on the 1st of October, a contract was made with the company for the completion of the road by the 1st of October, 1886. Of the subsidy there has been paid up to date the sum of \$15,000 under an Order in Council of the 12th of November.

La Société de Colonisation du Lac Temiscamingue.—(See No. 54). By the Act 48·49 Vic., cap. 59, a subsidy was authorized in aid of the construction of a line of railway from Long Sault to the foot of Lake Temiscamingue. The limit of the amount being \$25,000. Under the authority of an Order in Council of the 17th

November, 1885, a contract was entered into with the company above named for the construction of the line, which is to be completed by the 1st of January, 1887. No portion of the subsidy has been paid.

SURVEYS.

The following surveys for lines of railway have been made during the summer and autumn. Details will be found in an Appendix (No. 22, p. 171), furnished by the Chief Engineer of Government Railways :—

Short Line Railway.

A location survey of the unconstructed portions lying between the River St. Lawrence and Mattawamkeag has been made; also a preliminary survey between Harvey and Salisbury.

Cape Breton Railway.

A survey from the Strait of Canso to Louisburg has been made, and the further distance to Sydney is also under survey.

Restigouche and Victoria Railway.

A survey has been made for a line to connect the Intercolonial Railway, near Campbellton, with the New Brunswick Railway at Grand Falls, River St. John.

NOTE.—An alphabetical list of subsidized lines will be found on page 169.

CANALS.

The canal systems of the Dominion, under Government control, in connection with lakes and navigable rivers, are as follows :—

1. The River St. Lawrence and Lakes.
2. The River Ottawa.
3. The Rideau Navigation, from Ottawa to Kingston.
4. The Trent Navigation.
5. The River Richelieu, from the St. Lawrence to Lake Champlain.
6. St. Peter's Canal, Bras d'Or Lake, Nova Scotia.

The collection of the revenue derivable from the canals of the Dominion being in the hands of the Department of Inland Revenue, reference must be had to the annual report of that Department for all information in relation to the subject. The report in question further deals with general matters relating to the movement of freight on these canals.

The following statement, showing the amount accrued on each canal, for canal revenue proper and hydraulic rents, etc., during the fiscal year ended the 30th of June, 1885, has been furnished by the Department of Inland Revenue.

Name of Canal.	Tolls.	Wharfage and Storage.	Fines and Damages.	Other Receipts.	Hydraulic Rents.	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Welland.....	151,699 80	.....	1,078 72	.....	6,870 95	159,649 47
St Lawrence.....	63,206 36	6,383 23	1,103 50	9,149 11	18,416 00	98,258 20
Chambly.....	18,241 97	6 50	1 00	.....	130 00	18,379 47
Ottawa.....	51,915 15	.....	.....	47 00	36 00	51,998 15
Rideau.....	3,515 95	104 28	.....	182 00	1,003 70	4,805 93
Burlington Bay.....	1,938 25	.....	.....	.....	.....	1,938 25
Newcastle District.....	220 35	.....	.....	.....	.....	220 35
St. Peter's.....	2,786 06	.....	.....	.....	.....	2,786 06
	293,523 89	6,494 01	2,183 22	9,378 11	26,456 65	338,035 88

RIVER ST. LAWRENCE AND LAKES.

The River St. Lawrence, with the system of canals established on its course above Montreal, and the Lakes Ontario, Erie, St. Clair, Huron and Superior, with connecting canal, afford a course of water communication extending from the Straits of Belle-Ile to Port Arthur, at the head of Lake Superior, a distance of 2,260 statute miles. The distance to Duluth is 2,384 miles.—See Appendix No. 13, p. 143).

The difference in level between Lake Superior and the point on the St. Lawrence, near to Three Rivers, where tidal influence ceases, is about 600 feet.

The Dominion canals, constructed between Montreal and Lake Erie, are the Lachine, Beauharnois, Cornwall, Farran's Point, Rapide Plat, Galops and Welland. Their aggregate length is $70\frac{1}{2}$ miles; total lockage (or height directly overcome by locks) is $533\frac{1}{4}$ feet; number of locks, 53.

Communication between Lakes Huron and Superior is obtained by means of the Sault Ste. Marie Canal, situated on the United States side of the river.

The canal is a little over a mile in length, and has one lock 515 feet long, 80 feet wide, with 16 feet of water on the sills, and a lift of about 18 feet.

ST. LAWRENCE CANALS.

In 1841, as was observed in the report presented last year, at the time when the system of canals between Montreal and Lake Ontario was designed, it was in contemplation to afford a depth, at all stages of the St. Lawrence waters, of 9 feet, a depth seemingly, from the data then possessed, secured through the works proposed. The River St. Lawrence is, however, from various causes, subject to fluctuations, the extent of which it was impossible, at the time when these canals were originally constructed, to arrive at with precision, and the continued observations and experience of subsequent years have shown that while the intermediate river reaches, at all times, afford ample depth for vessels of 9 feet draught, in the canals themselves, at certain periods of low water, this depth cannot be maintained, the bottom not having been sunk to a sufficiently low level.

The following list shows the least depth of water on the sills of the locks of the St. Lawrence Canals at a time of exceptionally low water, in the year 1872 (*vide* report of Chief Engineer, 1880) :—

	Feet.	Inches.
Williamsburgh Canals—		
Rapide Plat, guard lock.....	6	7
“ “ lower entrance.....	7	0
Galops, guard lock.....	8	1
Iroquois, lower entrance.....	9	3
Farran's Point.....	7	9
Cornwall, guard.....	8	3
“ lower entrance.....	9	0
Beauharnois.....	10	10
“ lower entrance.....	9	3

In the year 1871 it was decided to enlarge the canals on the St. Lawrence route so as to afford a navigable depth of 12 feet throughout. Subsequently, however, it was decided that the depth should ultimately be increased so as to accommodate vessels of 14 feet draught; and accordingly in the scheme of enlargement which has so far been carried out, while, at present, a channel-way in the canals is provided for vessels drawing 12 feet only, all permanent structures, locks, bridges, &c., are built of such proportions as to accommodate vessels of 14 feet draught, the locks being 270 feet long between the gates, 45 feet in width, and with a clear depth of 14 feet of water on the sills.

In pursuance of this scheme, the Lachine and the Welland Canals have been enlarged, and certain works on the Cornwall and the Rapide Plat Canals are being carried out on the scale above mentioned. Reference to these works will be made under their proper headings.

LACHINE CANAL.

	Old Line.	New Line.
Length of canal.....	8½ statute miles.	8½ statute miles.
Number of locks.....	5	5
Dimensions of locks.....	200 feet by 45 feet.	270 feet by 45 feet.
Total rise or lockage.....	45 feet.	45 feet.
Depth of water { at two locks 16 "		18 "
on sills..... { at three locks 9 "		14 "
Mean width of new canal.....	150 "	

The new canal having been extended for some distance above the entrance of the old canal, the total rise has been increased from $44\frac{3}{4}$ to 45 feet.

This canal extends from the City of Montreal to the Village of Lachine, overcoming the St. Louis Rapids, the first of the series of rapids which bars the ascent of the River St. Lawrence. They are 986 miles distant from the Straits of Belle-Ile.

The canal now consists of one channel, with two distinct systems of locks, the old and the enlarged. There are two entrances at each end.

The full scheme for the enlargement of this, in common with the other canals of the St. Lawrence, contemplated the affording a navigable depth of 14 feet throughout; the improvement immediately in view, however, was only intended to furnish a navigable depth of 12 feet in the canal proper, and accordingly, on the following reaches, namely, between Lachine and Côte St. Paul, Côte St. Paul and St. Gabriel, and between St. Gabriel and Wellington Basin, the channel has been adapted to navigation by vessels of 12 feet draught only. All permanent works on the canal, such as locks, bridges and side walls, have been built to afford a navigable depth of 14 feet.

The canal was closed on the 30th of November, 1884, and opened on the 4th May, 1885.

The new lock and entrance to the canal at Lachine were opened on the 1st of June, 1885.

No accident or interruption to navigation has occurred during the year, and the works have been maintained in a state of thorough efficiency.

The report of the Superintending Engineer gives details of the repairs executed, and shows generally the condition of the canal. (App. 6, p. 98.)

NEW WORKS.

The two new basins at St. Gabriel, commenced in July, 1883, are completed.

A macadamized road has been constructed along the south-east side of the canal, from Lachine to the Cote St. Paul road.

BEAUHARNOIS CANAL.

Length of canal.....	11½ statute miles.
Number of locks.....	9
Dimensions of locks.....	200 feet by 45 feet.
Total rise or lockage.....	82½ feet.
Depth of water on sills.....	9 “
Breadth of canal on bottom.....	80 “
Breadth of canal at water surface.....	120 “

This canal commences on the south side of the St. Lawrence, 15½ miles from the head of the Lachine Canal. It connects Lakes St. Louis and St. Francis, and passes the three rapids known respectively as the Cascades, the Cedars, and the Coteau.

The canal was closed by ice on the 1st of December, 1884, and was reopened for traffic on the 3rd of May, 1885.

No accident or interruption to navigation occurred during the year.

CORNWALL CANAL.

Length of canal.....	11½ statute miles.
Number of locks	7
Dimensions of locks... ..	200 feet by 55 feet.
Total rise or lockage.....	48 feet.
Depth of water on sills.....	9 “
Breadth of canal at bottom (except at two culverts).....	100 “
Breadth of canal at water surface.....	150 “

From the head of the Beauharnois to the foot of the Cornwall Canal, there is a navigable stretch through Lake St. Francis of 32½ miles.

The Cornwall Canal extends past the Long Sault Rapids.

This canal was closed on 8th December, 1884, and re-opened on the 8th of May, 1885.

NEW WORKS.

The two locks at the new lower entrance (taking the place of three on the old line), were in constant use during the season of navigation. The dimensions of the new locks are those of the general enlargement scheme, namely : length, 270 feet ; breadth, 45 feet ; depth of water, 14 feet. The basin between these two locks is 825 feet long.

Of the four locks still to be dealt with, one is already under contract ; also a supply weir, together with works for the improvement of the upper entrance.

The proposed channel will be sunk to such depth as to admit of the passage of vessels of 14 feet draught.

WILLIAMSBURGH CANALS.

The Farran's Point, Rapid Plat and Galops Canals are collectively known as the Williamsburgh Canals.

These canals were closed on the 17th December, 1884, and re-opened on the 4th of May, 1885.

A statement showing the highest and lowest depth of water at the locks on these canals will be found in appendix 6, p. 114.

Navigation was carried on throughout the season without interruption. (App 6, p. 113.)

FARRAN'S POINT CANAL.

Length of canal.....	$\frac{3}{4}$ mile.
Number of locks.....	1
Dimensions of locks.....	200 feet by 45 feet.
Total rise, or lockage.....	4 feet.
Depth of water on sills at ordinary water level..	9 "
Breadth of canal at bottom.....	50 "
Breadth of canal on water surface.....	90 "

From the head of the Cornwall Canal to the foot of Farran's Point Canal the distance on the River St. Lawrence is 5 miles. This latter canal enables vessels ascending the river to avoid the Farran's Point Rapid. Descending vessels run the rapids with ease and safety.

RAPIDE PLAT CANAL.

Length of canal.....	4 miles.
Number of locks.....	2
Dimensions of locks.....	200 feet by 45 feet.
Total rise, or lockage.....	11½ feet.
Depth of water on sills.....	9 “
Breadth of canal at bottom.....	50 “
Breadth of canal at surface of water.....	90 “

From the head of Farran's Point Canal to the foot of Rapide Plat Canal there is a navigable stretch of 10½ miles. This canal was formed to enable vessels ascending the river to pass the rapid at that place. Descending vessels run the rapid safely.

NEW WORKS.

Steps have been taken towards the enlargement of this canal in conformity with the proportions of the general scheme. These works consist of the enlargement of the channel way above and for some distance below the present guard lock at the head of the canal, the construction of a new lock, and a supply weir in connection with the old lock. The bottom of the channel, for a distance of about 1,000 feet below, and out into deep water, above the lock, about 700 feet, will be excavated to an extent sufficient to afford a navigable depth of 14 feet. The works are progressing.

GALOPS CANAL.

Length of canal.....	7½ miles.
Number of locks.....	3
Dimensions of locks.....	200 feet by 45 feet.
Total rise, or lockage.....	15¾ feet.
Depth of water on sills.....	9 “
Breadth of canal at bottom.....	50 “
Breadth of canal at surface of water.....	90 “

From the head of Rapide Plat Canal to Iroquois, at the foot of the Galops Canal, the St. Lawrence is navigable for 4½ miles. This canal enables vessels to overcome the rapids at Pointe aux Iroquois, Pointe Cardinal and the Galops.

From a statement furnished by the Superintendent of these canals and attached to his report (p. 114) it appears that the minimum depth of water reached during the past fiscal year was on the Rapid Plat Canal in April, 1885, when, at the foot of the canal, there was a depth of 6 feet 6 inches. The lowest point at which the water stood on this canal during the season of navigation was in November, 1884 when the height of water at the guard lock was 8 feet 5 inches.

NEW WORKS.

The work of the enlargement and general improvement of the upper entrance of this canal is in progress. The work under contract is the excavation and deepening of a channel way at the upper end leading to deep water, so as to give a depth available for vessels of 14 feet draught.

GALOPS RAPIDS IMPROVEMENT.

The Galops Rapids, the most shallow of the three passed by the Galops Canal, are being improved, for purposes of navigation, by certain works of submarine blasting and dredging.

These works, commenced in 1830, consist of the excavation of a straight channel through the rapids, 3,300 feet long, 200 feet wide, and of such depth as to afford safe passage at low water to vessels of 14 feet draught.

The work is now nearing completion. (See Appendix 11, page 138.)

WELLAND CANAL.

MAIN LINE, FROM PORT DALHOUSIE, LAKE ONTARIO, TO PORT COLBORNE,
LAKE ERIE.

By the works of enlargement, passage is now afforded, at all stages of the Lake Erie level, to vessels drawing 12 feet of water, excepting at the point where the canal is carried by an aqueduct over the Chippewa River. Here the necessity of continuing to use the old work, pending the building of the enlarged aqueduct, renders care imperative, and the draught of vessels using their own motive power should not, at this point, exceed $11\frac{1}{2}$ feet; the draught of vessels in tow, however, may be 12 feet. At periods of low water in Lake Erie, and especially during a continuance of strong easterly winds, the draught of all vessels, to enable them to pass freely through the present aqueduct, should not exceed $11\frac{1}{2}$ feet.

	OLD LINE.	ENLARGED OR NEW LINE.
Length of canal.....	$27\frac{1}{3}$ miles.	$26\frac{3}{4}$ miles.
Pairs of guard gates (formerly 3)....		2
Number of locks { lift.....	26	} lift 25 guard 1
{ guard.....	1	
Dimensions { 1 lock 270 x 45	{ 1 " 200 x 45 1 (tidal) 230 x 45 24 150 x $26\frac{1}{2}$	} 270 feet x 45 feet.
{ 1 " 200 x 45		
{ 1 (tidal) 230 x 45		
{ 24 150 x $26\frac{1}{2}$		
Total rise or lockage.....	$32\frac{3}{4}$ feet.	$326\frac{3}{4}$ feet.
Depth of water on sills.....	$10\frac{1}{4}$ "	12 "

WELLAND RIVER BRANCHES.

Length of Canal—Port Robinson Cut to River Welland.....	2,622 feet.
“ From the Canal at Welland to the river <i>viâ</i> lock at aqueduct..	300 “
“ Chippewa Cut to River Niagara	1,020 “
Number of locks—One at aqueduct and one at Port Robinson.....	2
Dimensions of locks.....	150 by 26½ feet.
Total lockage from the Canal at Welland down to River Welland.....	10 feet.
Depth of water on sills.....	9 “ 10 inches.

GRAND RIVER FEEDER.

Length of canal.....	21 miles.
Number of locks.....	2
Dimensions of locks.....	{ 1 of 150 by 26½ feet. 1 of 200 by 45 “
Total rise, or lockage.....	7 to 8 feet.
Depth of water on sills.....	9 feet.

PORT MAITLAND BRANCH.

Length of canal.....	1¾ miles.
Number of locks.....	1
Dimensions of locks.....	185 by 45 feet.
Total rise, or lockage.....	7½ feet.
Depth of water on sills.....	11 “

The Welland Canal has one entrance from Lake Ontario, at Port Dalhousie, serving for both the old and new canals, and two from Lake Erie, of which one is for the main line at Port Colborne, and one for the feeder route at Port Maitland; it has also an entrance from the River Niagara, at the town of Chippewa. The enlarged route lies between Port Dalhousie and Port Colborne.

From Port Dalhousie to Allanburgh, 11¾ miles, there are now two distinct lines of canal in operation, the old line and the enlarged, or new line.

From Allanburg to Port Colborne, a distance of 15 miles, there is only one channel, the old canal having been enlarged.

The canals were closed on the 4th December, 1884, and re-opened on the 5th of May, 1885.

NEW CANAL.

No interruption to navigation occurred, the schooner " Westside " however, ran into the superstructure of the swing bridge at Humberstone, displacing it temporarily.

A measuring guage has been placed at the foot of Lock No. 1, the entrance from Lake Ontario, by which a check is placed on vessels to prevent overloading. A similar guage exists at Port Colborne.

The minimum depth of water at the entrance to the canal from Lake Erie, Port Colborne, during the past season of navigation was in November, 1884, the depth of water on the sill of the old lock being 11 feet 8 inches, the depth on the sill of the new lock being 14 feet.

At Port Dalhousie, Lake Ontario, the minimum depth during the season was in November, 1884, being 12 feet 10 inches on the sill of the old lock, the depth on the sill of the new lock being 15 feet 4 inches. (See p. 130.)

Full details of the various repairs, renewals, &c., executed during the year, will be found in the report of the Superintendent. (App. 6, p. 115.)

OLD CANAL.

The necessary repairs and renewals of the year have been made, and the works have been maintained in good condition. (App. 6, p. 123.)

NEW WORKS.

The works of constructing an aqueduct by which the waters of the canal are to be carried over the River Chippewa, have so far progressed during the past year, that the whole of the subaqueous arches through which the river is to be passed are now completed, together with a portion of the masonry forming the channel way to receive the waters of the canal. The work executed comprises the more difficult part of the undertaking.

The work at the rock cutting between Humberstone and Port Colborne has practically been completed.

BURLINGTON BAY CANAL.

Length of canal	$\frac{1}{2}$ mile.
Average breadth between piers.....	138 feet.
Least " "	108 "

This canal is cut through the sand bar which separates Burlington Bay from Lake Ontario, and is navigable, without locks, for vessels drawing 10 feet of water. It gives access to the Port of Hamilton, and to the town of Dundas, *via* the Deserens Canal, a private work.

The canal was closed on the 18th of December, 1884, and re-opened on the 1st of May, 1885. (See App. 6, p. 130.)

By an Order in Council dated the 30th of June, 1885, this work being practically only a cut giving entrance to the harbour of Hamilton, was transferred to the Department of Public Works.

MONTREAL, OTTAWA AND KINGSTON.

This route extends from the harbour of Montreal to the Port of Kingston, passing through the Lachine Canal, the navigation sections of the lower River Ottawa and the Ottawa Canals, to the city of Ottawa, thence by the River Rideau and the Rideau Canal to Kingston, on Lake Ontario—a total distance of 245½ miles.

After leaving the Lachine Canal, the works constructed to overcome the difficulties of navigation are :—

The St. Anne's Lock ;
Carillon Canal ;
Grenville Canal ;
Rideau Canal.

The total lockage (not including that of the Lachine Canal), is 509 feet—(345 rise, 164 fall)—and the number of locks is 55.

The following table exhibits the intermediate distances from Montreal Harbour :—

Sections of Navigation.	Intermediate distance.	Total distance from Montreal.
	Miles.	Miles.
The Lachine Canal.....	8½	
From Lachine to St. Anne's Lock.....	15	23½
St. Anne's Lock and Piers.....	⅓	23⅝
From St. Anne's Lock to Carillon Canal.....	27	50⅝
The Carillon Canal.....	¾	51⅝
From Carillon Canal to Grenville Canal.....	6½	57⅝
The Grenville Canal.....	¾	63⅝
From the Grenville Canal to entrance Rideau Navigation.	56	119⅝
Rideau Navigation, ending at Kingston.....	126½	245⅝

ST. ANNE'S LOCK.

	Old lock.	New lock.
Length of canal.....	$\frac{1}{8}$ mile.	$\frac{1}{8}$ mile.
Number of locks	1	1
Dimensions of lock.....	190 by 45 feet.	200 by 45 feet.
Total rise, or lockage.....	3 feet.	3 feet.
Depth of water on sills.....	6 "	9 "

This work, with guide piers above and below, surmounts the St. Anne's Rapids between Ile Perrot and the head of the Island of Montreal, at the outlet of that portion of the River Ottawa which forms the Lake of Two Mountains, $23\frac{1}{2}$ miles from Montreal Harbour.

This lock was closed to navigation on the 24th of November, 1884, and re-opened on the 5th of April, 1885.

Traffic throughout the season was uninterrupted.

Both the old and the new locks are available.

The work of straightening and deepening the channel above the new lock is making good progress. The length of the improved channel will be 4,700 feet, the breadth at bottom 100 feet, and the depth, at lowest water, 10 feet. (App. 6, pp. 108, 110.)

THE CARILLON CANAL.

Length of canal.....	$\frac{3}{4}$ mile.
Number of locks.....	2.
Dimensions of locks.....	200 by 45 feet.
Total rise, or lockage.....	16 feet.
Depth of water on sills.....	9 "
Breadth of canal at bottom	100 "
Breadth of canal at water surface.....	110 "

This canal overcomes the Carillon Rapids.

From St. Anne's Lock to the foot of the Carillon Canal there is a navigable stretch of 27 miles, through the Lake of Two Mountains and the River Ottawa.

The canal was closed on the 24th of November, 1884, and re-opened on the 7th May, 1885.

No interruption to traffic has taken place.

The important works necessitated by the accident to the Carillon dam, which occurred in 1883, have, practically, been completed, a small section only on the south side of the river requiring to be dealt with.

By the construction of the Carillon dam, the water at that point has been raised 9 feet. Above this point, for a distance of nearly 7 miles, as far as the foot of Grenville Canal, the level of the river has been raised, and, consequently, the depth of water on the lower sill of the entrance lock of that canal has been increased and the necessity of using the Chute à Blondeau Canal, situated between these points, is obviated.

GRENVILLE CANAL.

Length of canal.....	5 $\frac{3}{4}$ miles.
Number of locks.....	5
Dimensions of locks.....	200 feet x 45 feet.
Total rise, or lockage.....	43 $\frac{3}{4}$ "
Depth of water on sills.....	9 "
Breadth of canal at bottom.....	40 to 50 feet.
Breadth of canal at surface of water.....	50 to 80 feet.

From the head of the Carillon Canal to the foot of the Grenville Canal, there is a navigable stretch of 5 $\frac{1}{2}$ miles.

This canal, by which the Long Sault Rapids are avoided, is about 56 miles below the city of Ottawa.

The canal was closed on the 26th of November, 1884, and re-opened on the 7th of May, 1885.

NEW WORKS.

The work remaining to be done at Greece's Point in connection with the enlargement, was completed in September, 1884.

(See App. 6, p. 109.)

UPPER OTTAWA RIVER.

CULBUTE LOCKS AND DAMS.

Number of locks.....	2
Dimension of locks.....	200 by 45 feet.
Total rise, or lockage.....	18 to 20 "
Depth of water on sills.....	6 "
Aggregate length of dams.....	625 "

From the Grenville Canal to the city of Ottawa, a distance of about 56 miles, the river is navigable. Beyond the city, for a distance of 107 miles, to L'Islet or Culbute, continuous navigation is rendered impracticable by the undermentioned rapids

—The Chaudière, the DuChêne, the Chats, the Chenaux, the Portage du Fort and the Grand Calumet.

The Culbute works, situated at L'Islet, surmount the Culbute and L'Islet Rapids on the north channel of the Ottawa.

These works comprise two locks and three continuous dams, all built of wood. The dams reduce the rapids to smooth water, enabling the river to be navigated from the head of the locks to Des Joachims, a distance of 37 miles.

Navigation closed on the 27th of November, 1884, and re-opened on the 18th of April, 1885.

NEW WORKS.

To render the river navigable below the lock, as far as Bryson, it has been necessary to remove part of three shoals and to build two submerged dams.

All the work has been completed, opening up a navigable route of 80 miles, with a minimum depth of 7 feet at extreme low water, between Des Joachims and Bryson, making a total above and below Culbute of 117 miles. (App. 6, p. 111.)

RIDEAU NAVIGATION.

The Rideau system connects the River Ottawa, at the city of Ottawa, with the eastern end of Lake Ontario, at Kingston.

Length of navigable waters.....	126½ miles.
Number of locks going from Ottawa to Kingston.	{ 33 ascending. 14 descending.
Total lockage.....	446½ { 282½ rise, and 164 fall. } at high water.
Dimensions of locks.....	134 by 33 feet.
Depth of water on sills, 5 feet; navigable depth through the several reaches.....	4½ feet.
Breadth of canal reaches at bottom.....	{ 60 " in earth. 54 feet in rock.
Breadth at surface of water.....	80 " in earth.

For table of distances of stations between Ottawa and Kingston, see Appendix 14, p. 144.

The summit level of this system is at Upper Lake Rideau, but several of the ascending reaches are also supplied by waters which have been made tributary to them. The following description gives the sources of supply : —

From the summit, the route towards Ottawa follows the River Rideau, and that towards Kingston follows the River Cataraqui. The whole duty of keeping up the water to its proper level is effected by the reserves, given in detail below.

They may be divided into three systems, viz:—

1. The summit level, supplied by the Lake Wolf system. 2. The eastern descending level to Ottawa, supplied by the River Tay system, discharging into Lake Rideau. 3. The south-west descending level to Kingston, supplied by the Mud Lake system, formerly known as the Devil Lake system, discharging into Lake Openacon.

Lake Openacon receives the waters of Buck Lake and Rock Lake.

All these waters on the descending level, supplemented by those of Lake Loughboro', flow into Cranberry Lake, which, discharging through Round Tail outlet, forms the River Cataraqui. This river, rendered navigable by dams at various points, affords a line of navigation to Kingston.

The navigation stopped at Kingston Mills on the 18th November, 1884, and recommenced on the 11th May, 1885.

At Ottawa, navigation stopped the 24th of November, 1884, and recommenced on the 8th May, 1885.

Through navigation, however, was delayed until the 23rd of June, 1885, in consequence of serious damage caused to the works at Long Island and Hog Back through the spring freshets, which were unusually heavy. The temporary repairs effected proved satisfactory.

The level of the water in the several reaches was maintained up to the close of navigation, 1884, at the full height required, except in the reach between Kingston and Lower Brewers where it fell, in August, 1886, below navigable height, continuing to fall to the close of navigation when it was 7 inches below.

At the last Session of Parliament the sum of \$20,000 was voted "for works necessary to increase the supply of water to the canal and the Gananoque River." In pursuance of the objects of this vote, arrangements have been authorized by an Order in Council of the 16th of November last, by which the Gananoque Water-power Company will undertake the execution of works affecting that river, receiving from the Government the sum of \$3,000 towards the cost to be incurred. The contract has not yet been executed.

TAY CANAL.

This canal, when completed, will be a branch of the Rideau Canal, affording communication between Beveridge's Bay, on Lake Rideau, and the town of Perth, a distance of about 6 miles. (App. 6, p. 133.)

The works, embracing the construction of a dam and two locks, 134 feet by 32 feet, with a depth, at the lowest stage of water, of 5 feet 6 inches, also the deepening of the channel of the River Tay, where required, are in progress.

RICHELIEU AND LAKE CHAMPLAIN.

This system, commencing at Sorel, at the confluence of the Rivers St. Lawrence and Richelieu, 46 miles below Montreal, extends along the River Richelieu through the St. Ours Lock to the Basin of Chambly, thence by the Chambly Canal to St. Johns and the River Richelieu, to Lake Champlain. The distance from Sorel to the boundary line is 81 miles.

At Whitehall, the southern end of Lake Champlain, the Champlain Canal is entered, and connection is obtained with the River Hudson, by which the city of New York is directly reached. From the boundary line to New York the distance is 330 miles.

The following table shows the distance between Sorel and New York :—

Sections of Navigation.	Intermediate distance in miles.	Total distances.
Sorel to St. Ours Lock.....	14	14
St. Ours Lock to Chambly Canal.....	32	46
Chambly Canal.....	12	58
Chambly Canal to Boundary Line.....	23	81
Boundary Line to Champlain Canal.....	111	192
Champlain Canal to Junction with Erie Canal.....	66	258
Erie Canal from Junction to Albany.....	7	265
Albany to New York.....	146	411

ST. OURS LOCK AND DAM.

Length of canal.....	$\frac{1}{8}$ mile.
Number of locks.....	1
Dimensions of lock.....	200 feet by 45 feet.
Total rise or lockage	5 "
Depth of water on sills.....	7 " at low water.
Length of dam in eastern channel.....	300 "
" " western channel.....	690 "

At St. Ours, fourteen miles from Sorel, the River Richelieu is divided by a small island into two channels. The St. Ours Lock is in the eastern channel.

There is a navigable depth of 7 feet between St. Ours Lock and Chambly Basin, a distance of thirty-two miles.

The lock was closed on the 30th November, 1884, and opened on the 4th May, 1885.

No accident or interruption to navigation occurred during the year.

Six new piers have been built and certain dredging work has been performed. (App. 6, p. 103).

CHAMBLY CANAL.

Length of canal.....	12 miles.
Number of locks.....	9

Dimensions of locks :—

Guard Lock, No. 1, at St. Johns.....	122 feet by $22\frac{1}{2}$ feet.
Lift “ “ 2.....	124 “ 23 “
“ “ “ 3, 4, 5, 6.....	118 “ $22\frac{1}{2}$ to 24 feet.
“ “ “ 7, 8, 9 combined ..	125 “ $22\frac{1}{2}$ to 23 “
Total rise or lockage.....	74 “
Depth of water on sills.....	7 “
Breadth of canal at bottom.....	36 “
“ “ surface of water.....	60 “

Succeeding the 32 miles of navigable water between St. Ours Lock and Chambly Basin—a natural reservoir formed by the expansion of the River Richelieu—is the Chambly Canal, which overcomes the rapids between Chambly and St. Johns, a distance of 12 miles.

This canal was closed to navigation on the 30th November, 1884, and was re-opened on the 4th of May, 1885.

No accident or interruption to navigation occurred during the year. (See App. 6, p. 101).

ST. PETER'S CANAL, CAPE BRETON.

Length of canal.....	about 2,400 feet.
Breadth at water line.....	55 feet.
Lock	one tidal lock, 4 pairs of gates.
Dimensions	200 feet by 58 feet.
Depth of water on sills.....	18 feet at lowest water.
Depth through canal.....	19 feet.
Extreme rise and fall of tide in St. Peter's Bay	4 feet.

This canal connects St. Peter's Bay, on the southern side of Cape Breton, Nova Scotia, with the Bras d'Or Lakes. It crosses an isthmus half a mile in width, and gives access from the Atlantic.

Navigation was closed on the 2nd of January, 1885, and re-opened on the 1st May, 1885.

The canal was maintained in good working order. The traffic returns show the passage of 715 vessels bound north and 619 vessels bound south. (App. 6, p. 137.)

TRENT RIVER NAVIGATION.

The term "Trent River Navigation" is applied to a series of water stretches, which do not, however, form a connected system of navigation, and which, in their present condition, are efficient only for local use.

This series is composed of a chain of lakes and rivers extending from Trenton, at the mouth of the Trent on the Bay of Quinté, Lake Ontario, to Lake Huron.

Many years ago the utilizing of these waters for the purpose of through water communication between Lakes Huron and Ontario, was projected.

The course in contemplation was as follows:—

Through the River Trent, Rice Lake, the River Otonabee and Lakes Clear, Buckhorn, Chemong, Pigeon, Sturgeon and Cameron to Lake Balsam, the summit water, about 166 miles from Trenton; from Lake Balsam by a canal and the River Talbot to Lake Simcoe; thence by the River Severn to Georgian Bay, Lake Huron, the total distance being about 235 miles.

The execution of this scheme, commenced in 1837, was subsequently deferred. By certain works, however, below specified, sections of these waters were made practicable for navigation and for the passage of timber. A branch of the main course, extending from Sturgeon Lake south, affords communication with the town of Lindsay, and, through Lake Seugog to Port Perry, a distance of 190 miles from Trenton. Of this distance, 155 miles are navigable for vessels of light draught.

The following table gives the distance of navigable and unnavigable reaches :

	Navigable. Miles.	Unnavigable. Miles.
From Trenton, Bay of Quinté, to Nine Mile Rapids...		9
" Nine Mile Rapids to Percy Landing.....	19 $\frac{1}{2}$	
" Percy Landing to Heeley's Fall Dam.....		14 $\frac{1}{4}$
" Heeley's Falls Dam to Peterboro'.....	51 $\frac{3}{4}$	
" Peterboro' to Lakefield.....		9 $\frac{1}{2}$
" Lakefield to Burleigh	12	
" Burleigh Rapids.....		1
" Burleigh Rapids to Buckhorn Rapids	7	
" Buckhorn Rapids.....		1
" Buckhorn Dam to Lindsay.....	36 $\frac{1}{4}$	
	126 $\frac{1}{2}$	34 $\frac{3}{4}$
" Lindsay to Port Perry at the head of Lake Scugog	28 $\frac{1}{4}$	
	155 $\frac{1}{4}$	34 $\frac{3}{4}$ miles.
Total distance, Bay of Quinté to Port Perry...		190 miles.
Passing to Fenelon Falls the distance from Buckhorn Dam to Fenelon is		31 $\frac{1}{2}$ "

The following is a list of the works:—

Chisholm's Rapids.

	Distance from Trenton in miles.
The works here consists of a canal and lock, a dam and slide	15 $\frac{1}{2}$
<i>Percy Landing</i>	
A retaining boom for saw logs....	28 $\frac{1}{2}$
<i>Campbellford.</i>	
Guide booms	34 $\frac{3}{4}$
<i>Middle Falls.</i>	
The work consists of 4 dams and 2 slides.....	37 $\frac{3}{4}$
<i>Crow Bay.</i>	
A retaining boom	28
<i>Heeley's Falls.</i>	
A dam and slide.....	42 $\frac{3}{4}$
<i>Crook's Rapids, Hastings.</i>	
The works consist of 1 lock, 1 dam and slide for timber	34 $\frac{5}{8}$
<i>Whitlas' Rapids.</i>	
The works, situated below Peterboro', consist of a lock, dam and canal.....	92 $\frac{7}{8}$

Little Lake.

The works consists of 3 piers and 1 boom..... 94

Burleigh.

Timber slides..... 101

Buckhorn Rapids.

There is a dam at this point, which is important as keeping up the level of the water of the lakes west of it, as far as Bobcaygeon, including Lakes Pigeon, Ball, Buckhorn and Chemong..... 125

Bobcaygeon.

There are two dams here with canal, lock and slide. These dams retain the waters of the reach as far as Fenelon Falls and Lindsay Lock..... 140 $\frac{3}{4}$

Fenelon Falls.

A large slide and booms..... 155 $\frac{3}{4}$

Lindsay.

The old lock, having become useless, was rebuilt by the Government of the Province of Ontario in 1879. Its dimensions are 134 x 33 feet, with 5 feet of water on the sills.... 161 $\frac{1}{4}$

The navigation is, by this work, extended to Port Perry, Lake Seengog..... 190

The dimensions of Dominion locks are 133 feet 6 inches x 33 feet, with 5 feet depth of water on the sills.

The Lindsay lock was constructed by, and is under the control of, the Province of Ontario.

Navigation ceased on the 12th November, 1884 and re-opened on the 25th of March, 1885. (App.6, p. 134).

NEW WORKS.

The new works for the improvement of the Trent Valley navigation, for the construction of which appropriations have been voted by Parliament, are at the following places :—Canals at Burleigh Rapids, Buckhorn Rapids, and Fenelon Falls : also dams at Lakefield and Young's Point. Their completion will give communication between Lakefield, 9 $\frac{1}{2}$ miles from Peterboro', and Balsam Lake, the headwater of the system, opening up a total of about 150 miles of direct and lateral navigation.

At Lakefield, 9 $\frac{1}{2}$ miles from Peterborough, the existing dam, a private one, at the head of the nine miles Rapids of the River Otonabee which maintains navigation on Lake Katchewanoe up to Young's Point, has been purchased from the owners, and the dam having been seriously damaged and rendered dangerous during the prevalence of the spring freshets in 1883, a new work was placed under contract and has been now completed.

At Young's Point, 5 miles from Lakefield, the dam between Lake Katchewanoe and Clear Lake, assumed by the Government, being in too dilapidated a state to admit of restoration, a new dam has been constructed, the new levels of the two lakes named, consequent upon its completion, have been maintained without difficulty.

At Burleigh Rapids, 10 miles from Young's Point, a canal is being constructed about $2\frac{1}{4}$ miles in length, passing the Burleigh and Lovesick Rapids, and giving communication between Stony Lake and Deer Bay. The work, comprising the construction of three lift-locks and certain dams, is in progress.

At Buckhorn Rapids, 7 miles from Burleigh Rapids, a canal about one-fourth of a mile long is being constructed, having one lift-lock. The masonry work has been completed.

At Fenelon Falls, 32 miles from Buckhorn Rapids, a canal about one-third of a mile in length, connecting Sturgeon Lake with Cameron Lake, is being constructed. This canal has two lift-locks. The whole was completed in October, 1885.

In all the above named works the locks will be of the following dimensions:—

Length.....	134 feet.
Breadth.....	33 "
Depth on sills	5 "

(App. 6, p. 140).

MURRAY CANAL.

This canal will extend through the Isthmus of Murray, giving connection westward between the headwaters of the Bay of Quinté and Lake Ontario.

The works on this canal, commenced under a contract given out in August, 1882, comprise a cut through the isthmus $4\frac{1}{4}$ miles long, and improvements to the entrance channels at either end.

The canal will have a depth of 11 feet below the lowest known water level of the lake, and a width at the bottom of 80 feet. There are no locks.

Its western terminus is the harbour of Presqu'île, from which point to the entrance of the Welland Canal, the distance is about 120 miles. (App. 6, p. 138).

The works have been steadily prosecuted and excavation has been carried on over the entire extent of the canal proper.

I have the honour to be,

Your Excellency's most obedient servant,

J. H. POPE,

Minister of Railways and Canals.

31st December, 1885.

APPENDICES.

APPENDIX No. I.

STATEMENT showing the amount expended by the Department of Railways and Canals, Dominion of Canada, during the Fiscal Year ending 30th June, 1885.

Name of Work.	Construction.	Repairs.	Staff and Maintenance.
	\$ cts.	\$ cts.	\$ cts.
CANALS.			
Machine.....	111,215 23	20,199 78	49,004 85
Beauharnois.....	7,999 79	14,637 70	18,960 40
Cornwall.....	62,034 90	12,368 51	15,988 96
do drain.....	16,298 96		
Williamsburg.....	103,237 12	8,198 03	7,696 67
St. Lawrence.....	115,110 17		
Velland.....	463,505 38	89,238 96	112,670 00
do back ditches.....	6,150 21		
do Port Maitland.....		2,295 70	
Wilmington Bay.....		206 48	
St. Anne's.....	93,679 57	4,042 04	2,618 60
Marillon.....	68,820 52	10,429 26	19,702 30
Greenville.....	88,367 20		
Albute.....	19,071 76	572 75	730 00
Ideau.....	2,098 76	18,189 55	26,971 32
rent.....	121,382 84	4,653 50	3,303 87
Murray.....	148,902 66		
St. Ours.....	4,700 64	3,652 63	2,271 57
Hamby.....	21,049 23	13,046 95	18,378 55
St. Peter's.....	16,820 15	183 11	1,929 11
Surveys.....	5,650 85		
Arbitrations.....	6,727 12		
St. Lawrence.....	92,473 97		
Bridge vessels.....		1,210 61	
Zotique Road.....	4,347 50		
Total on Canals.....	1,579,644 53	203,125 56	280,226 20
RAILWAYS.			
Specific.....	3,258,920 53		
do subsidy.....	6,862,201 00		
Surveys.....	10,873 51		
do Short Line.....	49,587 45		
Statistics.....	124 87		
Colonial.....	1,195,363 08		2,441,477 91
do Windsor Branch.....			18,751 96
Western Extension.....	2,055 92		78,273 65
Prince Edward Island.....	78,444 09		211,207 01
Buildings general.....	403,245 00		
Total on Railways.....	11,860,820 45		2,749,710 53
Total on Railways and Canals.....	13,440,464 98	203,125 56	3,029,936 73
Specific Railway Loan Account.....	9,701,438 00		
John Bridge and Railway Extension.....	135,200 00		
Total.....	9,836,638 00		

Total Amount Expended..... \$26,510,165.27

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, December, 1885.

J. BAINE,
Accountant.

APPENDIX

STATEMENT showing the amount expended on the construction and the
(Repairs not

By whom Expenditure Incurred.	Year ending 30th June.	Lachine Canal.	Beauharnois Canal.
		\$ cts.	\$ cts.
Imperial Government.....	} Up to June 30, 1867 {	40,000 00	.....
Provincial Government.....		2,547,532 85	1,611,424 11
Dominion Government.....	1868	1,852 70	7,008 00
do	1869	2,000 00	55 00
do	1870	.....	587 50
do	1871	12,231 40	187 00
do	1872	36,708 15	27 50
do	1873	42,982 49	5,280 90
do	1874	158,618 35	26 00
do	1875	197,420 52	36 00
do	1876	327,769 39	.....
do	1877	1,439,375 73	.....
do	1878	1,484,619 63	.....
do	1879	958,053 30	.....
do	1880	369,566 74	.....
do	1881	292,165 51	.....
do	1882	252,821 33	.....
do	1883	396,496 96	.....
do	1884	189,034 41	.....
do	1885	111,215 23	.....
Total		8,860,464 69	1,624,632 01

No. 2.

enlargement of Canals of the Dominion of Canada, up to 30th June, 1885.
(included.)

Cornwall Canal.	St. Lawrence Canals. — Not Apportioned	Williamsburg Canals.	St. Lawrence. — Chain Vessel and Improvement of Navigation.	Surveys, St. Lawrence and Canals.	Welland Canal.
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
					222,220 00
1 933,152 69	116,821 31	1,320,655 54			7,416,0'9 83
2,786 00					12,097 84
10,692 04					43,486 36
17,780 05					24,173 72
7 50					47,869 10
10,000 21		1,077 00			59,702 76
1,011 75				35,326 44	130,158 47
				26,541 30	746,420 61
1,780 00				22,611 36	1,046,714 91
			28,500 00	21,715 47	1,570,178 19
49,211 37			28,064 67	19,312 64	2,199,962 61
145,015 45			1,623 76	3,946 70	2,138,392 99
143,092 05		4,580 00		4,685 77	1,552,697 41
109,454 95			623 52	8,591 04	1,252,924 75
52,948 14			6,927 96		1,242,942 37
41,587 61			28,933 45		603,402 17
21,728 93			44,874 31		550,240 36
23,018 13		2,473 44	89,846 03		432,952 88
62,034 90		103,237 12	115,110 17		463,505 38
2,629,301 77	116,821 31	1,432,023 10	344,503 81	142,7 0 72	21,756,063 71

APPENDIX

STATEMENT showing the amount expended on the construction and the
(Repairs not

By whom Expenditure Incurred.	Year ending 30th June.	Ste. Anne's Lock.	Carillon and Grenville Canals.	Culbute Lock.	Rideau Canal.
		\$ cts.	\$ cts.	\$ cts.	\$ cts.
Imperial Government.....	{ Up to June 30, 1867 }	.....	(*)	.....	3,911,701 47
Provincial Government.....		134,456 51	63,053 64	.....	153,062 60
Dominion Government.....	1868	.....	19,817 22	.....	7,593 67
do	1869	.....	.....	.....	.....
do	1870	.....	4,167 96	.....	.....
do	1871	.....	23,119 37	.....	11,732 88
do	1872	1,939 46	165,257 28	.....	4,967 50
do	1873	540 11	136,250 48	.....	18,070 97
do	1874	12,753 27	245,258 38	38,388 99	5,793 16
do	1875	32,627 71	339,864 76	63,659 29	9,310 85
do	1876	24,935 85	316,203 16	76,842 44	2,163 96
do	1877	30,003 08	245,738 04	56,081 87	214 11
do	1878	14,618 85	22,676 20	5,933 53	.....
do	1879	22,113 02	243,141 24	20,694 19	7,703 88
do	1880	3,054 68	281,514 27	16,688 20	355 05
do	1881	69,042 76	336,707 53	4,721 62	.....
do	1882	193,158 36	453,084 39	29,567 15	.....
do	1883	172,959 95	416,826 10	14,249 60	.....
do	1884	142,006 25	399,267 16	8,151 16	.....
do	1885	92,679 57	157,187 72	19,071 76	2,098 76
Total		947,839 43	3,859,134 90	354,049 80	4,134,768 86

* Expenditure not given.

No. 2—*Concluded.*

enlargement of the Canals of the Dominion of Canada, &c.—*Concluded.*
included.)

Chambly Canal.	St. Peter's Canal.	Survey Baie Verte Canal.	Murray Canal.	Trent Canal.	Tay Canal.	Total.
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
						4,173,921 47
643,711 76	88,949 39					16,028,840 23
	21,519 72					72,675 15
	70,719 80					126,953 20
	46,193 57					92,902 80
2,872 85						98,020 10
1,906 40						281,586 26
759 00		4,877 83				375,258 44
		4,018 90				1,237,818 96
2,415 00	20 97	443 00				1,716,904 37
	11,125 00	110 75				2,389,544 21
80 00	63,330 18	22 30				4,131,396 60
	26,511 51					3,843,338 62
	107,337 75					3,064,098 61
	80,120 54					2,122,893 74
	69,434 76	520 00				2,076,411 65
	484 00					1,586,038 46
			84,071 68	40,767 16	4,831 80	1,697,046 85
	2,471 40		118,187 43	120,643 91	50,878 12	1,578,930 32
	16,820 15		148,902 66	121,382 84	92,473 97	1,506,720 23
151,745 01	605,038 74	9,992 78	351,161 77	282,793 91	148,183 89	48,201,300 27

APPENDIX NO. 3.

STATEMENT showing Subsidies voted to the undermentioned Railways, and payments thereon, up to 30th June, 1885.

Subsidies Voted.		Railways.	No. of Miles Completed	Payments.		
Authority.	Subsidy Voted.			1883-84.	1884-85.	Total.
	\$			\$	\$	\$
46 Vic., esp. 25...	156,800	...International Railway, Quebec.....	45	144,000	.....	144,000
45 do 14.....	384,000	} Quebec and Lake St. John Railway, Quebec.....	.....	32,000	37,027	69,027
46 do 25.....	80,000					
48-9 do 59.....	96,000	} Napanee, Tamworth and Quebec Railway, Ontario.....	25	32,000	57,600	89,600
46 do 25.....	89,600					
48-9 do 59.....	70,000	} Pontiac and Pacific Junction Railway, Quebec.....	.....	.....	49,090	49,090
47 do 8.....	272,000					
46 do 25.....	115,200	} Caraqueet Railway, N.B....	10	.....	32,000	32,000
47 do 8.....	76,800					
47 do 8.....	32,000	...Great Northern Railway, Quebec.....	7 ³ / ₁₀	.....	25,088	25,088
47 do 8.....	48,000	...Kingston and Pembroke Railway, Ontario.....	15	.....	48,000	48,000
45 do 14.....	660,000	} Northern and Pacific Junction Railway, Ontario.....	.....	.....	154,440	154,440
46 do 25.....	660,000					
				208,000	403,245	611,245

J. BAINE,
Accountant.

APPENDIX No. 4.

CANADIAN PACIFIC RAILWAY.

OFFICE OF THE ENGINEER-IN-CHIEF,

OTTAWA, 10th October, 1885.

SIR,—On the 1st of October, 1884, I had the honor to report to you upon the progress made up to that date with the work of construction of the Canadian Pacific Railway. Another year having passed, it now devolves upon me to report progress made subsequently to that date.

I shall, in the first place, give a table of distances similar in form to that of last year, as a revision of location has made slight changes in those figures.

TABLE OF DISTANCES.

TRUNK LINE.

Montreal to Port Moody.

	Miles.	Miles:
Montreal to Callander.....	344	
Callander to Port Arthur	651	
Port Arthur to Red River (opposite Winnipeg)....	428	
Red River to Savona's Ferry.....	1,257	
Savona's Ferry to Port Moody.....	213	
	—	2,893

Branch Lines, Acquired and Built.

St. Lin (St. Therese Junction to St. Lin).....	15	
St. Jerome (St. Lin Junction to St. Jerome).....	11	
St. Eustache.....	8	
Aylmer (Hull to Aylmer).....	7 $\frac{1}{2}$	
Brockville	45 $\frac{1}{2}$	
Perth	12	
Algoma.....	94 $\frac{3}{4}$	
Pembina (Emerson to Winnipeg).....	64 $\frac{1}{2}$	
Colville Landing.....	2	
Selkirk	22	
Stonewall (Air Line Junction to Stonewall).....	18 $\frac{1}{2}$	
Pembina Mountain	102 $\frac{1}{2}$	
Gretna	14	
Emerson and West Lynn.....	15	
	—	432 $\frac{1}{4}$
Total acquired and built.....		3,325 $\frac{1}{4}$

Rolling Stock.

The rolling stock applicable to the main line is the same as reported last year, viz. :—

- 245 engines.
- 78 first-class cars.
- 33 second-class cars.
- 48 baggage and mail cars.
- 25 dining, sleeping and palace cars.
- 10 immigrant sleeping cars.
- 4,386 platform freight cars.
- 1,867 box and cattle cars.
- 126 conductors' vans, pay cars, &c.
- 8 derrick and coal cars.
- 19 snow ploughs.

POSITION AND PROGRESS OF THE WORK.

TRUNK LINE.

Montreal to Callander, 344 miles.

This section has continued up to the present time in successful operation.

Callander to Port Arthur, 651 miles.

A revision of the location has so improved the general alignment as to shorten the length of this section by 6 miles, giving 651 instead of 657 miles, as reported last year. The sub-section between Callander and Biscotasing, 189 miles in length, is completed and in operation, and from thence to Port Arthur, 462 miles, the track is laid, and the work of making up to grade the few remaining low embankments and the ballasting is progressing rapidly. The wooden bridges, when fully braced and completed, will be strong structures.

Many of the truss bridges over the rivers are strong, well designed steel structures, resting on solid masonry piers and abutments.

The Pic River bridge is a fine steel structure, with timber approaches, which latter Mr. Van Horne, the Vice-President of the Company, informs me he proposes to replace with iron trestles next season..

As the trestle bridges wear out they will as a rule be replaced by earthen embankments. In most cases no earth was to be had in the immediate neighborhood with which to form the embankments, and it would, in my opinion, have been a great waste of money to have formed solid embankments in advance of the track.

The road-bed is in many places formed of good ballast, of which there is abundance throughout this section, it will therefore, when finally completed, be very solid.

A very efficient water service is nearing completion, the tanks having a capacity of 50,000 gallons. Suitable stations to accommodate the traffic are being erected, as well as engine houses at each of the five divisional posts, which will range from 120 to 130 miles apart. Strong gangs of men are employed in hurrying forward the completion of the several buildings, and about twenty trains are engaged in making up low embankments and in ballasting, with a view of having this section ready for traffic within a few weeks, so as to afford unbroken rail connection from Halifax, on the Atlantic seaboard, to Manitoba and the North-West. Thus, early in November, passengers landing at Halifax will be able to board the train and proceed through British territory direct to the great North-West, by the Canadian Pacific Railway, passing by the north of Lake Superior, while the railway will be available during the current month to merchants desiring to forward freight.

Port Arthur to Red River (opposite Winnipeg), 428 miles.

This section is completed and in fine running order. The large elevator at Fort William, the foundation of which I mentioned in my last report as having been laid,

is now finished, and a considerable quantity of grain has passed through it. Its capacity is 1,000,000 bushels. Suitable engine houses and other buildings have been erected at the two divisional points, and station houses and dining-rooms have been built, suitable for the traffic.

Red River to Savona's Ferry, 1,257 miles.

The action of the snow during last winter was carefully watched by the Government Inspecting Engineer, as well as by the Company's staff; and from the information obtained it was apparent that it would be necessary to locate the line so as to escape, so far as possible, the snow slides descending from the northern range of mountains. This somewhat retarded the work of construction, as it was considered advisable to abandon the location already made upon the side of the mountain preparatory to construction, and to devise some means of crossing the valley and reaching the lower levels before approaching the snow slides which it was desired to avoid, without increasing the severity of the grade. Mr. James Ross, an able engineer and Manager of the Company's works of construction, set vigorously to work to solve the problem; and, by a clever piece of engineering, succeeded in gaining the necessary distance by taking advantage of the general contour of the country to form, as if were, a double loop; thus touching the bottom lands clear of the most formidable snow slides, and without increasing the severity of the grades; and although this resulted in an increase of 3 miles to the length of the section, the general alignment, outside the loop, was much improved. The sub-section from the Red River (opposite Winnipeg) to Donald Station at the foot of the east slope of the Selkirks, 1022, miles in length, is under traffic. The latter point is 2,446 miles from Montreal. Nine miles of temporary road is being used in the meantime, pending the completion of the permanent way to take its place. From Donald Station to within 10 miles of the second crossing of the Columbia, a distance of 73 miles, the track is laid. From this latter point, for a distance of 36 miles, the grading and bridging are so far advanced as to ensure the laying of the track by the end of the current month. Thence to Savona's Ferry, a distance of 124 miles, the track is laid. Savona's Ferry is 2,680 miles from Montreal. Although the track is laid throughout with the exception of the 36 miles, just referred to, there remains considerable amount of work to be done before the road is completed. The permanent line alongside the 9 miles of temporary track near Mount Stephen has not yet been commenced, and between Donald and Savona's Ferry a good deal of finishing up will still be required. A tunnel in the Ile-cille-wait Pass is not quite finished, a number of truss bridges have yet to be built over rivers now crossed by temporary trestles. The station buildings, water service, &c., have yet to be provided; cuttings and embankments to be trimmed up and completed, besides a considerable amount of ballasting still to be done. It will, however, not take very long to get the road into fit condition for traffic, but I do not think it is the Company's intention to operate it through the mountains this season; in fact, I should not consider it wise to attempt to do so until the road is thoroughly completed, which will scarcely be before spring. On the first 900 miles west of Red River the engine houses and other necessary buildings have been erected, and water service provided, and preparations are being made to supply these requisites on the next sub-section westwards. The portion of this section under traffic, 1022 miles, is in good running condition.

Savona's Ferry to Port Moody, 213 miles.

This section may almost be said to be completed, being so far advanced that it may very shortly be accepted by Government. It is in fine running condition. It was built by Messrs. D. O. Mills and A. Onderdonk, under contract with the Government. Under the terms of the agreement with the Canadian Pacific Railway Company, this section will be transferred to them upon being taken over from the

contractors by the Government. The station houses and water services are all built, and an engine house at North Bend is in progress and will shortly be completed. The Port Moody wharf has not been touched since the date of my last Report, 1st October, 1884.

GENERAL.

The condition of the Railway may be summarized thus:—

Trunk Line.

	Miles.
Track laid.....	2,857
Grading nearly completed.....	36

Total length of main line..... 2,893

It thus appears that the only break in the track is 36 miles in length, and I am safe in stating that by about the close of the present month, October, 1885, the road from Montreal to Port Moody will be ironed from end to end.

The contract with the Canadian Pacific Railway Company called for the completion of the road by the 30th June, 1891. It is now early in October, 1885, and about the end of the month there will be unbroken rail connection over the entire line. The road is therefore to all intents and purposes completed five years and eight months in advance of the contract limit. The accomplishment of this astonishing feat is without doubt largely due to the ability and determination of the Vice-President, Mr. VanHorne aided by his staff, in giving effect to the policy of activity adopted by the Company. The work of carrying this great undertaking to completion has been fraught with many difficulties, both financial and otherwise; but perseverance on the part of the Company, with judicious aid from the Government in time of difficulty, has overcome all barriers, and as I have stated, the anxiously looked for object of having railway connection from ocean to ocean through British Territory is now practically accomplished.

Branch Lines.

The position of the branch lines has not changed since my Report of October last. Their length is as then stated, 432½ miles.

In conclusion I may state that the rolling stock is first class in every respect. The passenger car stock is especially admirable, the dining and sleeping cars being most elaborately fitted up, both as regards comfort and beauty; while I may safely say that the other classes of passenger stock are not excelled on the American continent.

I have the honor to be, Sir,

Your obedient servant,

(Signed) COLLINGWOOD SCHREIBER,
Engineer-in-Chief.

A. P. BRADLEY, Esq.,
Secretary Department Railways and Canals.

APPENDIX No. 5.

CANADIAN GOVERNMENT RAILWAYS.

OFFICE OF THE CHIEF ENGINEER AND
GENERAL MANAGER OF GOVERNMENT RAILWAYS.

OTTAWA, 11th November, 1885.

	Miles.
Intercolonial Railway	861
Eastern Extension Railway.....	80
Windsor Branch Railway.....	32
Prince Edward Island Railway.....	212
	<u>1,185</u>

SIR,—I have the honor to submit to you herewith the reports and accounts in connection with the operation of the railways under my charge, for the year ended the 30th June, 1885. These railways have now an aggregate length of 1,185 miles in operation, an increase of 27 over the mileage of the preceding year, accounted for thus :—

	Miles.
Intercolonial Railway, St. Charles Loop Line.....	14
Prince Edward Island Railway, Cape Traverse Branch.....	13
	<u>27</u>

The results of the year's business of these railways are shown in the following statement :—

Name of Railway.	Mileage.	—	Amount.	Profits.	Loss.
			\$ cts.	\$ cts.	\$ cts.
Intercolonial.....	861	Earnings.....	2,368,153 65		
		Expenses.....	2,441,477 91		73,324 26
Eastern Extension.....	80	Earnings.....	73,050 01		
		Expenses.....	78,273 65		5,223 64
Windsor Branch.....	32	Earnings.....	24,451 35		
		Expenses.....	18,761 96	5,699 39	
Prince Edward Island.....	212	Earnings.....	158,588 06		
		Expenses.....	211,207 01		52,618 95
				5,699 39	131,166 85
					5,699 39
Total.....					125,467 46

INTERCOLONIAL RAILWAY.

Although the loss on the year's operation of the Government railways exceeds that of the preceding year by \$41,402.82, this result may be regarded as not unsatisfactory, in view of the heavy expenditure for additions and improvements, which, in the case of most railways, are charged to capital, but which swell the working expenses of the Intercolonial Railway. These include additional new sidings, freight and station houses, semaphores, snow and ordinary fencing, the raising of several bridges and their approaches, increased water service, &c. The cost of clearing away snow was also unusually heavy, exceeding that of the preceding year by \$19,000, or over 33 per cent., while the completion of the new general offices at Moncton also added to the cost of operation.

The gross earnings show a slight increase over those of the preceding year, having been:—

1884-85.....	\$2,368,153 65
1883-84.....	2,353,647 26

Amount of increase..... \$ 14,506 39

This may be attributed to the increase in the tonnage of through freight carried.

The tonnage of coal despatched from the mines of Nova Scotia to the Western Provinces and the western section of New Brunswick continues steadily to increase, and the managers of the mines are pressing for an additional supply of cars; and although I scarcely think that any inconvenience has so far been experienced for want of means of conveyance, there is no doubt that, if the output of the mines continues to increase, additional coal car stock must be provided at an early date.

The following table shows the earnings and the amount of freight and number of passengers carried in each year since the road was opened throughout for traffic, on the 1st July, 1876:—

Year.	Miles in Operation.	Earnings.	Tons of Freight carried.	No. of Passengers carried.
		\$ cts.		
1876-77.....	714	1,154,445 35	421,327	613,428
1877-78.....	714	1,378,946 78	522,710	618,957
1878-79.....	714	1,292,099 69	510,861	640,101
1879-80.....	825	1,506,298 48	561,924	581,483
1880-81.....	840	1,760,393 92	725,577	631,245
1881-82.....	840	2,079,262 66	838,956	779,994
1882-83.....	840	2,370,921 10	970,961	878,600
1883-84.....	847	2,353,647 26	1,001,163	920,870
1884-85.....	861	2,368,153 65	970,069	914,785

It will thus be seen that the earnings from all sources, and the volume of freight traffic, have more than doubled in 9 years, while the passenger travel has increased by about one-third.

The following table shows the amount of rolling stock purchased on capital account up to the 30th June, 1884, with additions made during the past fiscal year :—

	Engines.	Passenger Train Stock.			Conductors' Vans.	Box Cars.	Platform Cars.	Coal Cars, Capacity in tons.	Snow Ploughs.	Wing Ploughs.	Flangers.
		1st Class.	2nd Class.	Baggage, Mail, &c.							
	No.	No.	No.	No.	No.	No.	No.	Tons.	No.	No.	No.
Total on 30th June, 1884.....	163	68	75	47	51	1,529	1,441	19,200	30	10	20
Additions in 1884-85.....		2					1	9,000			
Total, 30th June, 1885.....	163	70	75	47	51	1,529	1,442	28,200	30	10	20

The following rolling stock has been rebuilt during the year at the cost of working expenses to maintain the stock :

	Engines.	Passenger Train Stock.			Conductors' Vans.	Box Cars.	Platform Cars.	Coal Cars.	Snow Ploughs.	Wing Ploughs.	Flangers.
		1st Class.	2nd Class.	Baggage, Mail, &c.							
	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.	No.
During the year 1884-85.....							2	320			

The road and rolling stock have continued to receive careful attention, and are in good condition. The introduction of 67-lbs. steel rails has proceeded as the old 56-lb steel rails have worn out and been removed from the track, rendering the road much more solid and more suitable to the heavier traffic which it is called upon to bear.

The volume of ocean borne traffic through the port of Halifax showed a very sensible increase during the year, and it may be hoped that the good despatch given to this class of business will have the effect of still further developing it. Several cargoes of grain were successfully shipped from Halifax, and the volume of export live stock business was well maintained.

The European mails, landed at Halifax in winter and at Rimouski in summer, have received prompt despatch over the Intercolonial.

The St. Charles Loop Line and the Dalhousie Branch have both been in operation during the year, and have proved to be of great convenience to the travelling public.

Capital Account.

The expenditure on works under this heading during the year was \$1,050,278.30, consisting of:

Construction of Branch Lines.....	\$573,226 94
Increased accommodation at the winter ports of St. John and Halifax.....	133,312 69

Payment on account of awards by the Intercolonial Railway Commission and official arbitrators in connection with old claims arising out of the construction of the Railway, and for legal expenses connected therewith.....	56,524 70
Additional Rolling Stock to accommodate increased traffic.....	287,213 97
	<u>\$1,050,278 30</u>

Of the six branch lines under construction, two only, the Dalhousie Branch and the St. Charles Loop Line, have been completed and opened for traffic, of the remaining four, three are in a forward state, Dartmouth Branch, the Rivière du Loup Town Branch and the Indian Town Branch. Upon the Paspebiac Branch, the work has been confined to surveys and location.

The increased accommodation provided at St. John and Halifax has proved to be of great advantage to the business of those parts; and with some addition to wharf accommodation and shed room, it may be regarded as sufficient for the present traffic.

The rolling stock is generally fully employed, and, as I have stated, the managers of coal mines are urging the necessity of providing at least 500 additional gondola coal cars. I am of opinion that the existing stock would be sufficient if it could be kept upon the Intercolonial Railway. But when once it goes on to foreign roads, it is beyond the control of the management, and great difficulty is experienced in having it promptly returned.

EASTERN EXTENSION RAILWAY.

The operation of this railway has continued to be separate from that of the Intercolonial Railway, in the absence of legislation to authorize its being worked as a part of that road. The cost of operation is therefore higher than it would be if the line formed part of the trunk system; for although it is operated under the general direction of the chief officers of the Intercolonial Railway, a separate staff is employed at New Glasgow.

The cost of operating this railway for the year under consideration exceeded the earnings by \$5,223.64; but it is believed that when it forms part of the Intercolonial system, and its accounts are merged with those of the trunk line, so that no separate staff will be required—superintendent, mechanical superintendent, book-keeper, &c.—the era of deficits will cease; and, in spite of the above deficit, I am satisfied that the road is a good feeder to the Intercolonial, and indirectly of great service to it.

The Haggas system of water service is in use upon this railway, but it would be of advantage to the traffic to replace it by the elevated system.

The Port Hastings wharf, on the Cape Breton side of the Strait of Canso, on which the railway steamer lands goods during the winter season, is very much out of repair, and although it does not belong to the railway, it will be necessary to make a small expenditure upon it in order to render it safe and serviceable.

The road and rolling stock are in a good state of efficiency.

WINDSOR BRANCH RAILWAY.

This railway has continued to be maintained by the Government and operated by the Windsor and Annapolis Railway Company, in connection with their own line, upon the same terms as in former years, the company paying to the Government one-third of the gross earnings in consideration of maintenance. The one-third of the gross earnings during the year under consideration exceeded that of the preceding year by \$1,432.42, and fully sufficed to cover the cost of maintenance.

It should be remembered, however, that no charge is made against this railway for any portion of the services of the chief officers of the Intercolonial Railway, under whose supervision the work of maintenance is done, and whose salaries, &c., are borne by the trunk line.

The road has been well maintained, and is in good working order, and the company has been so fortunate as not to have a wheel leave the track during the whole twelve months.

PRINCE EDWARD ISLAND RAILWAY.

On the 22nd January, 1885, the Cape Traverse Branch of this railway was opened for traffic, adding 13 miles to the road in operation, and making its total length $212\frac{1}{2}$ miles, or equal to an average of 210 miles for the year. The traffic, though somewhat improved, is still very small. It is only in autumn, for a few weeks before the close of navigation, when the rolling stock is worked up to its full capacity; at other seasons a large portion of it remains idle.

The net result of the year's operation is more satisfactory than hitherto, the working expenses being.	\$211,207 01
Earnings.....	153,588 06
Loss	\$ 52,618 95
Loss during preceding year.....	91,924 01
Difference in favor of last year.....	\$ 39,305 06
Which was brought about by a reduction of the working expenses by.....	\$ 25,221 12
And an increase in earnings of.....	14,083 94
	<u>\$39,305 06</u>

The road is in a very efficient condition, and the rolling stock has been well maintained; and when the balance of the original freight car stock, 40 box and 12 platform cars, is rebuilt, the entire stock will be in first class order, and of much greater carrying capacity than the original car stock, cars of a capacity of 10 tons being substituted for the old 8-ton cars in the process of renewing.

The rolling stock provided on Capital account consists of:—

Engines.....	21
First class cars	17
Second class and baggage.....	15
Postal and smoking.....	3
Box and cattle.....	175
Platform	125
Conductors' vans.....	3
Paymaster's car.....	1
Snowploughs.....	8
Flangers.....	7

Of this stock the following was rebuilt during the year:—

Box cars.....	43
Platform cars.....	11
Snowploughs.....	1

The Cape Traverse Branch performed the mail service during last winter in connection with the ice-boats plying between Cape Traverse on the Island, and Cape Tormentine, on the mainland. The despatch thus given to the mails is said to have been of great service to the mercantile community, though the advantages afforded

by the Branch will not be fully realized until the completion of the New Brunswick and Prince Edward Island Railway, from Sackville, on the Intercolonial, to Cape Portmentine. This, I understand, is likely to be effected before the close of navigation this season.

Capital Account.

The cost of the road and rolling stock up to 30th June last was \$3,731,312.56, or \$17,559.12 per mile.

GENERAL REMARKS.

Every effort has been made by the officers of the Government railways to develop the business and to encourage traffic, and also to keep the expenditure within reasonable limits; and although the net results are not so favorable as might have been desired, I nevertheless feel that, for the excess of expenditure over earnings, the Government has full value in improvements, extensions and additions to its properties, obtained at the cost of working expenses. All the Government railways are certainly in a state of very high efficiency, to maintain which neither care or effort will be spared.

Very full information may be obtained from the reports of the Chief Superintendent, Superintendent, Chief Engineer and Mechanical Superintendent attached hereto, as well as from the accounts also submitted herewith.

I have the honor to be, Sir,
Your obedient servant,

COLLINGWOOD SCHREIBER,
Chief Engineer and General Manager.

INTERCOLONIAL RAILWAY.

OFFICE OF THE CHIEF SUPERINTENDENT,
MONCTON, N.B., 4th November, 1885.

COLLINGWOOD SCHREIBER, Esq.,
Chief Engineer and General Manager Government Railways,
Ottawa.

SIR,—I have the honor to submit the following Report on the working of the Intercolonial Railway, for the fiscal year which ended 30th June, 1885.

I enclose the Reports of the Chief Engineer and the Mechanical Superintendent, and also the following statements prepared by the Chief Accountant and Treasurer.

- | | | |
|--------|------------------------------------|-------------------|
| No. 1. | Capital account. | |
| " 2. | Revenue account. | |
| " 3. | Locomotive power | (Abstract No. 1). |
| " 4. | Car expenses | (" " 2). |
| " 5. | Maintenance of ways and works | (" " 3). |
| " 6. | Station expenses | (" " 4). |
| " 7. | General charges | (" " 5). |
| " 8. | General stores account. | |
| " 9. | General balance. | |
| " 10. | Comparative statement of averages. | |

The length of railway in operation during the year was 861 miles. On the 21st July, 1884, the St. Charles Branch, so called, 14 miles in length, was opened for traffic, thus making 14 miles more of railway in operation this year than last year.

CAPITAL ACCOUNT.

The total cost of road and equipment on the 30th June, 1884, was according to last year's report.....	\$42,582,231 71
Deduct refunds on account of the previous year's expenditure	4,915 22
	<u>\$42,577,316 49</u>

The additions during the year were as follows:—

For Halifax extension.....	\$ 16,580 01
Increased accommodation, St. John.....	116,732 68
Completion of the Intercolonial Railway.....	56,117 34
Rolling stock.....	287,213 97
St. Charles Branch	257,125 71
Dartmouth Branch	164,456 75
Dalhousie Branch.....	52,723 78
River du Loup Town Branch.....	46,256 01
Indian Town Branch	48,497 48
Paspebiac Branch	4,167 21
Miscellaneous works	407 36
	<u>1,050,278 30</u>

Making the total cost to the 30th June, 1885..... \$43,627,594 79

The deduction made in this year's accounts from the cost of the railway, on the 30th June, 1884, was made under the authority of the Auditor-General. The amount consists of cheques issued to pay for land and works, which cheques were cancelled, because the persons in whose favor they were drawn neglected or refused to accept the amounts offered them.

The expenditure at Halifax was in connection with the improvements of the place.

The expenditure at St. John was for the new passenger station which is nearly completed, and for making connection with the railway of the St. John Bridge and Railway Company.

The amount for completion of the Intercolonial Railway consists of payments on account of claims in connection with the construction of the line, and of the legal and other expenses of settling the same.

The expenditure for rolling stock was to provide an additional supply of large coal cars to carry coal to the West. These were provided at the request of the coal mining companies.

Work on the St. Charles Branch was so far advanced that it was opened for traffic on the 21st July, 1884, and it now forms the main line for passenger traffic to and from Quebec.

At Lévis a substantial and commodious station has been provided in a central position and close to the Quebec Ferry.

These improvements have made travel to and from Quebec over the Intercolonial Railway much more easy and pleasant than heretofore.

At Harlaka, on the new line, five miles from Lévis, the Quebec Central Railway has made a junction, and the trains of that railway, to and from Lévis now run between Lévis and Harlaka, over the Intercolonial, under a temporary arrangement.

The sums claimed for land damages in connection with the St. Charles Branch are very large. A considerable number of the claimants are still unpaid, the claim being under inquiry.

The Dartmouth Branch is not yet completed, but it is expected that it will be opened for traffic this autumn.

The Dalhousie Branch was completed, and the contractors were settled with.

The greater portion of the work of grading and tracklaying on the River du Loup Town Branch was completed.

The construction of the Indian Town Branch was commenced, and the contractor made some progress with the work.

REVENUE ACCOUNT.

The gross earnings of the year were \$2,368,153.65, being a slight increase when compared with last year.

The earnings in 1884-85.....	\$2,368,153 65
do do 1883-84.....	2,353,647 26

Increase.... \$ 14,506 39

This increase was entirely in the freight traffic.

The increase in freight was in through freight which increased in quantity 18,000 tons.

The gross tonnage carried was somewhat less than in the previous year.

The following is a comparative statement of a few of the chief articles of freight, showing the quantity carried in this and in the previous years:—

	1883-84	1884-85	Increase.	Decrease.
Barrels flour.....	815,641	907,102	91,461	
Bushels grain.....	654,635	729,707	75,072	
Lumber, in feet.	131,120,948	137,387,675	6,266,727	
Head of live stock...	62,090	65,513	3,423	
Other goods in tons..	729,923	678,035		51,888

The following shows the quantity of each of the above articles carried each year for six years:—

—	1879-80.	1880-81.	1881-82.	1882-83.	1883-84.	1884-85.
Barrels flour.....	525,248	672,310	692,095	983,916	815,641	907,102
Bushels grain	324,021	565,678	560,253	1,195,601	654,635	729,707
Lumber, in feet	55,462,654	72,841,388	78,356,418	104,633,417	131,120,948	137,387,675
Head of live stock	70,990	61,574	73,479	68,338	62,090	65,513
Other goods, in tons ...	422,256	544,354	647,561	704,608	729,923	678,035

It will be seen that there is a large increase in flour, grain, lumber and live stock.

There has also been a large increase in the quantity of coal carried to the upper Provinces. For the last few years this has steadily and rapidly increased.

The quantity of goods landed at Halifax, from ocean steamships for transport over the railway, was much larger than in any previous winter. It exceeded the winter of 1883-84 by 8,000 tons.

The European mails and passengers were landed and embarked at Rimouski during the summer season, as usual, and during the winter they were landed and embarked at Halifax.

The opening of the Dalhousie Branch for traffic enabled the steamer "Almiral," which runs on the Bay Chaleurs during the navigable season, to connect with the intercolonial at Dalhousie instead of at Campbellton as heretofore.

The number of passengers carried was rather less than last year.

The number of local passengers carried was 8,000 more than last year, and the number of through passengers 14,000 less, so that the whole number carried was slightly less than last year.

1883-84.....	920,870
1884-85.....	914,785
	<u>6,085</u>

EXPENDITURE.

The working expenses for the year were \$2,441,477.91.

They compare as follows with last year, per mile run by engines and trains, and per mile of railway :—

Per mile run by engines :—	Cents.
1883-84.....	53.19
1884-85.....	50.47
Decrease.....	<u>2.72</u>

Per mile run by trains :—

1883-84.....	64.17
1884-85.....	61.15
Decrease.....	<u>3.02</u>

Per mile of railway :—

1884-85.....	\$2,835 65
1883-84.....	2,791 16
Increase.....	<u>\$ 44 47</u>

The necessary repairs were made to the permanent way and structures and all the works in connection with the railway were maintained in a thorough state of efficiency.

The work of relaying the main line with heavier steel rails, to make the track more strong and solid, was continued, and 57½ miles of steel rails, weighing 56 pounds to the yard, were taken up and replaced with new steel rails, weighing 67 pounds to the yard.

There were 197,491 new sleepers put into the main track.

Sixty-seven miles of the main track were ballasted.

Thirty-seven new sidings were put in at various stations along the line.

The fences were repaired, where necessary, and one hundred and thirty miles of new fences were erected. Twenty miles of this fencing built on a part of the line which had never before been fenced.

Two miles of new snow fences were built, and three thousand lineal feet of snow sheds were rebuilt.

Several new freight houses and station houses were built, and the buildings on all parts of the line received necessary repairs.

Eight new semaphore signals were erected.

A new track scale to weigh cars loaded with coal was put in at Stellarton.

Improved turntables, made of wrought iron, were put in the engine houses at Campbellton and Rivière du Loup.

The wharves at the several ports received repairs, and in the case of those at Richmond and Pictou Landing the renewals were extensive and costly.

Two bridges carrying the railway over streets in the town of New Glasgow were raised several feet in order to give more headway on the streets underneath; this improvement necessitated the raising of the railway track and embankment for a considerable distance in each direction, so as to maintain a proper gradient.

The iron bridge over the La Planche River was raised 4 feet to avoid risk of damage from the ice, and the railway track and embankment for some distance in each direction was raised to suit.

Two new iron overhead bridges were erected to take the place of wooden ones. The cost of all these improvements and additions, and of others which I have not specified, forms part of the working expenses.

The new building for the general offices of the railway was completed and occupied.

The expenditure on it during the year was \$29,000. This, and indeed the entire cost of the building, was charged to the working expenses.

The improvement of the water supply, by erecting new tanks of greatly increased capacity, was continued, and three tanks, each of 50,000 gallons capacity, were erected. These and the reservoirs, pipes and steam pumps in connection with them cost \$6,300, the whole cost being charged to the working expenses.

The rolling stock received necessary repairs and is in good order.

Three hundred and twenty-two cars having been worn out were replaced by new ones, and the cost charged to working expenses.

Much more difficulty than usual was experienced last winter in keeping the track clear of snow, and the cost, which forms part of the working expenses, was consequently very great. The direct expenditure for this purpose was over \$76,000, being \$19,000 more than in any previous year.

The total expenditure for the year exceeded the gross earnings by seventy-three thousand three hundred and twenty-four dollars, twenty-six cents, as follows:—

Expenditure	\$2,441,477 91
Gross earnings	2,368,153 65
	<u>\$73,324 26</u>

This is due to the unusually large expenditure for improvements, several of which I have already referred to and explained, and the principal items of which may be summarized as follows:—

Additional sidings.....	\$19,000
New station buildings and semaphores.....	4,000
Fencing part of the line for the first time.....	10,500
Increased water supply.....	4,200
New iron overhead bridges	3,700
Raising bridges.....	4,500
Completing new general office building.....	29,000
	<u>\$74,900</u>

This expenditure was made in addition to the maintenance and renewal of existing works and was for improvements to the property.

Such expenditures as these are usually charged to capital by railway companies, but in this case they are all charged to working expenses and against the earnings for the year.

Stores.

The value of stores purchased was.....	\$ 766,090 31
The value of stores used was.....	1,122,839 31
The value of old material sold was.....	69,483 56

The value of stores on hand at the end of the year was :—

Ordinary stores, including fuel.....	\$ 413,994 87
Iron and steel rails.....	125,400 05
Second-hand materials serviceable.....	58,454 35
Old material for sale.....	125,935 00

Total stores on hand.....\$ 723,784 27

The old material for sale consists of scrap metals of various kinds, which will be sold as soon as the market for such articles becomes more favorable.

I have the honor to be, Sir,

Your obedient servant,

D. POTTINGER,
Chief Superintendent.

INTERCOLONIAL RAILWAY.

CHIEF ENGINEER'S OFFICE,
MONCTON, N.B., 3rd November, 1885.

SIR,—I have the honor to submit my report of the working of the Engineering Department for the year ending 30th June, 1885.

TRACK.

The mileage of the main line and branches in actual operation is 861 miles.

During the year 57½ miles of old steel rails in the main line, weighing 56 pounds to the lineal yard, were taken up and replaced with new steel rails, weighing 67 pounds to the lineal yard.

SIDINGS.

Thirty-seven new sidings have been put in at various points along the line, making additional accommodation to the extent of about four miles.

SLEEPERS.

During the year 197,491 sleepers have been renewed on the main line.

BALLASTING.

About 67 miles on the main line have been reballasted.

SEMAPHORE SIGNALS.

Eight semaphores have been put up during the past year.

SNOW SHEDS AND FENCES.

About 3,000 feet of snow shedding on northern divisions, numbers 1, 2 and 3 have been practically renewed, and a further quantity thoroughly overhauled and repaired.

About two miles of new snow fences have been erected on these divisions.

In addition to the ordinary repairs of fences, 130 miles of new barbed wire and Everett lath wire fencing have been erected.

About 20 miles of this fencing was erected on parts of the line that have never before been enclosed.

TURNTABLES.

At RIVIERE DU LOUP AND CAMPBELLTON—the 46 feet diameter cast iron tables were replaced with 50 feet diameter tables fitted with wrought iron arms and end girders.

WHARVES AND COAL TRESTLES.

At RICHMOND—the coal wharf was taken down and rebuilt from low water mark at an expense of about \$4,000. The cribs were wholly renewed with cedar and may now be expected to last thirty years. The deep water wharf and coal trestle were thoroughly overhauled and repaired at an expense of \$1,413. Two additional coal chutes were provided for the coal trestle.

At the DEEP WATER TERMINUS, HALIFAX—a coal drop was provided on the high trestle on the north side of the wharf suitable for coaling the largest ocean steamships. A moveable coal chute similar to those in use on the Northern Pacific Railway, at Seattle, Puget Sound, was provided for the north side of the bunker coal wharf.

At STEWIACKE—a large number of the piles were renewed in the wharf.

The wharf was also lowered about 4 feet, the piles re-capped, and top recovered with 3-inch deals. The two hoisting cranes on this wharf were reset on new foundations.

PICTOU LANDING—wharf received extensive repairs costing \$5,142.

At POINTE DU CHÊNE, DALHOUSIE AND RIMOUSKI—necessary repairs were made to the wharves.

BUILDINGS AND PLATFORMS.

At the DEEP WATER TERMINUS, HALIFAX—a large coal shed for local business was made and divided into separate compartments for each of the coal companies. A portion of the wharf near the large freight shed was double planked, and the freight shed floor repaired. The roof of the south of the freight shed erected was covered with what is known as the Brokenshire roofing. This being very unsatisfactory, it was stripped off and re-covered with tar and gravel roofing. The two wharves occupied by the Marine and Fisheries Department were thoroughly overhauled and repaired, at a large cost.

At NORTH STREET STATION—The galvanized iron covering of the roof of the Halifax train shed was repaired and painted inside and outside, at an expense of \$3,090. The painting was absolutely necessary to prevent the galvanized iron from rusting out in a very short time. A shed 100 by 20 feet, for the storage of hard coal, was nearly erected.

At RICHMOND—a hay shed, 150 by 35 feet, was erected; also a loading platform for the accommodation of the Windsor and Annapolis Railway. A new gate house and fence enclosing the Richmond reservoir were erected. The roof of freight shed on the deep water wharf was reshingled. A new floor was laid in the car repair shop. The old tool house near the round house was torn down, and a new one provided, at the east end of the blacksmith's shop. The roofs and walls of the machine shops were overhauled and repaired.

At BEDFORD—the roofs of station and agent's dwelling were repaired.

At WELLINGTON, SHUBENACADIE AND STEWIACKE—necessary repairs were made to the stations.

At TRURO—the platforms on either side of the station and restaurant were renewed with pine deals. The outside walls of station and restaurant were repaired and painted two coats. The roofs were also repaired and painted. A building was

erected for an oil house and express goods at the west end of station. A large water closet for the accommodation of the officers and public was erected. A new loading platform 150 feet long was provided and repairs made to the old one. Two new ventilators were provided for the roundhouse, and necessary repairs made to the pits and floors.

At RIVERSDALE—new sills were put under the station and the agent's dwelling moved further back from the track.

At WEST RIVER—a new loading platform for 8 cars was built.

The yard was also graded and very much improved.

At BATTERY HILL—a new freight house was erected.

At GLENGARRY—a loading platform for 6 cars was provided.

At STELLARION—necessary repairs were made to the station and engine-house; and a new track scale of 60,000 pounds capacity was provided for weighing coal.

At NEW GLASGOW—the stone station was thoroughly overhauled and the joints repointed with Portland cement. The platform in front of the station was renewed, and that at the ends repaired.

At DEBERT—new cattle pens were provided.

At LONDONDERRY—the oil-room was converted into a baggage-room.

A pair of cattle guards and necessary sign boards were provided for a public road-crossing at south end of station ground.

At OXFORD—the station was raised up two feet and repaired.

At SPRING HILL—the engine house was repaired and enlarged to admit of the largest engines. The wooden rails on the coal trestle leading from the coal company's shed to the chute were removed and replaced with iron rails. This trestle also received extensive repairs.

At MACCAN—the roof of station was shingled.

At AMHERST—a bonded warehouse was provided in freight shed. The approaches to station were graded and gravelled.

At AULAC—a kitchen was added to the dwelling apartments of the agent.

At SACKVILLE—the road approaches to Station were diverted, graded, gravelled and side ditched.

At MEMRAMCOOK—a kitchen was built in connection with the dwelling apartments of the agent, and considerable repairs made to the station.

At SHEDIAC STATION—the roof was reshingled and the walls and ceilings of waiting rooms repaired.

At POINTE DU CHÊNE—the freight shed and platform were lowered two feet to facilitate the handling of traffic from the Island boats.

At MONCTON—the Train Despatchers' offices were removed to the rooms formerly occupied by the General Passenger Agent. The rooms formerly occupied by the Despatchers were re-arranged and fitted up for the accommodation of the Western Union Telegraph Company. Necessary repairs were made to the dining-room. An addition of 300 by 25 feet was made to the car repair shop, and the floor of the repair shop renewed. Necessary repairs were made to the round house and machine shops. Eleven new terra cotta smoke stacks were provided for the roundhouse.

At SALISBURY, PETITCODIAC AND ANAGANCE—repairs were made to the platforms.

At PENOBSCUIS—the siding at the rear station was taken up, the yard graded and gravelled, and a new loading platform provided.

At PLUMWESEEP—a new flag station was built.

At SUSSEX—the room used as a post office was rearranged, and fitted up as lamp and baggage room. The loading platform as well as the station platform received extensive repairs.

At HAMPTON—a baggage room was built.

At QUISPAMIS STATION—the platform was extended 50 feet at either end of station.

At ST. JOHN STATION—the freight shed at the Deep Water Terminus was levelled up and repaired. The iron turntables on wharf were also repaired. A loading ground and platform were built on the site of the old passenger station. The new passenger station, retaining walls, grading tracks, and improvements in connection with St. John yard, have all been completed.

At YORK POINT ST. JOHN—a timber crib was built across the mouth of the dock and the dock has been filled in with waste material from the city. A connection was made with the passenger and freight tracks of the St. John Bridge and Railway Extension Company. A considerable amount of filling and grading was necessary for this connection.

At BERRY'S MILLS—a coal shed was erected.

At CANAAN—a new freight shed and loading platform were provided.

At ADAMSVILLE—a flag station was erected.

At WELDFORD—the roof of the station was reshingled. The baggage room in station was converted into a ladies' waiting room, and a new baggage room provided in the freight shed. Considerable repairs were made to the dwelling apartments of the agent.

At KENT JUNCTION—an approach was made to the freight house.

At ACADIEVILLE—the freight shed was moved across the track, fitted up, and the necessary approaches provided.

At ROGERSVILLE—the floors of office and waiting room were renewed.

At DERBY—a small coal shed was built and the loading platform repaired.

At NEWCASTLE—the roofs of station and freight house were thoroughly overhauled and repaired. The tar and gravel roofing of the roundhouse was renewed with Sparham roofing.

At BATHURST—an addition of 60 by 20 feet was made to the freight shed. The floors of waiting rooms and offices were repaired.

At PETIT ROCHER AND JACQUET RIVER—necessary repairs were made to the platforms and stations. A cattle pen was built at the latter place.

At DICKIE'S SIDING—a flag station and platform were rebuilt.

At NASH'S CREEK—the approaches to the siding were made up, and the flag station overhauled and repaired.

At CHARLO—a room was fitted up for the accommodation of the agent.

At CAMPBELLTON—a stone ash pit, 60 feet long, was built on the main track leading to the engine house. Accommodation was made in the car shed for 4 locomotives. The roof of this shed and also the roof of the boiler house were repaired. Four iron smoke stacks were provided for the car shed, and ten iron smoke stacks were renewed on the roundhouse. The roof of the station house was overhauled and repaired. The roof of the dining room was coated with Sparham roofing and the flashings repaired around the windows.

At FLAT LANDS—a flag station was erected and the platform lengthened.

At CEDAR HALL—the station was raised and repaired.

At SAYABEC—necessary repairs were made to the station.

At ST. MOISE—a new station and platform were erected at a cost of \$1,610.

At LITTLE METIS STATION—the platform was extended.

At ST. OCTAVE—a new freight shed and platform were built.

At ST. FLAVIE—the roof of engine house was wholly renewed with the best tar and gravel roofing.

At RIMOUSKI—a shelter for baggage was erected on the platform and a new freight shed.

At ST. SIMON—a cattle yard was made.

At TROIS PISTOLES—necessary additions were made in the dwelling apartments of the dining rooms.

At ST. ELOI, and at nearly all other stations on Northern Division, a small coal shed was erected.

At ST. ARSENE—the station was painted.

At CACOUNA—the platform was extended and thoroughly repaired.

At RIVIERE DU LOUP—one-half of the roof of engine house was renewed with best tar and gravel roofing, and the other half repaired and made water-tight.

The coal trestle near the roundhouse was almost wholly renewed.

At NOTRE DAME DU PORTAGE—outside sashes were provided for the station.

At ST. ANDRÉ—the station yard was graded with coal ashes.

At KING'S SIDING—a loading platform 100 feet long was erected.

At L'ISLET, CAP. ST. IGNACE, ST. PIERRE AND ST. FRANÇOIS—general repairs were made to the stations.

At ST. CHARLES STATION—the freight room was converted into a waiting room, and a new freight shed built.

The high level coal shed and trestle was removed from Chaudière Junction to St. Charles.

At Enfield, Stewiacke, Hopewell, Valley, Aulac, Painsec Junction, Nanwigewank Model Farm, Coal Branch, Rogersville, Bartibogue, Derby, Assametquaghan, Bic, St. Arsène, St. Valier, Elmsdale, Brookfield, Wellington, Folly Lake, Sackville, Penobscis, Passekeag, Berry's Mills, Kent Junction, Barnaby River, Red Pine, Petite Rocher, St. Moïse, Isle Verte, St. Pierre, St. Henri, Milford, West River, Glengarry, Riversdale, Petitcodiac, Apolaqui, Brookville, Canaan, Chatham Junction, Beaver Brook, Belledune, Cedar Hall, St. Fabien, St. André, St. François, Notre Dame du Portage. New water closets were provided at the following stations:—

BRIDGES AND CULVERTS.

At SHUBENACADIE BRIDGE—the cutwaters which were partially washed away in the heavy freshets of last spring, were repaired. The old floor timbers were renewed and replaced with the standard floor.

Near TRURO—a pile bridge of 30 feet span was erected last winter, where a culvert had partially washed out.

At NEW GLASGOW—two iron bridges over streets in the town were raised 2½ feet to permit fire engines passing under them. The approaches on either side were also raised.

At FOLLY RIVER VIADUCT—a footway for trackmen was provided.

LA PLANCHE BRIDGE—was raised 4 feet and the embankments graded out at either end. This was rendered necessary on account of the aboiteau in the public road below being removed, and thus admitting large blocks of ice being carried up under the railway bridge by the tide.

At AULAC—a pile trestle bridge was partially removed and replaced with a solid embankment, the balance of it was renewed.

At HUMPHREY'S CROSSING, NEAR SACKVILLE—the old overhead wooden bridge was replaced with an iron structure of three spans.

At PALMER'S POND, NEAR DORCHESTER—a pile bridge was built.

At PAINSEC—Reuben's trestle bridge was renewed.

SCOUDOUC BRIDGE—the superstructure was raised 18 inches, and the old timbers replaced with a standard floor.

POINTE DU CHÊNE Bridge was repaired.

At PETITCODIAC, PASSEKEAG, HAMPTON AND DARLING'S—standard floors were put on the bridges.

At PASSEKEAG, MODEL FARM, LAWLOR'S LAKE, STANLEY STREET AND GARDEN STREET, ST. JOHN—the floors of the overhead bridges were renewed.

At DERBY—the wooden overhead bridge was replaced with an iron structure of three spans, one central span of 81 feet, and two side spans of 21 feet each, on foundations of substantial masonry.

At NIGADOO, LOUISON'S BROOK, GRANT'S BROOK, ELM TREE, ADAMS AND McKINNON'S—standard floors were furnished on the bridges on Northern Divisions Nos. 1 and 2.

Near BATHURST—an overhead wooden bridge was replaced with an iron structure of four spans, one of 74 feet, and three of 21 feet each.

At RIVIERE DU LOUP AND ST. HENRI BRIDGES—necessary repairs were made to the cutwaters injured by the spring freshets.

Between SHUBENACADIE AND STEWIACKE—two-box culverts were renewed.

Between RIVIERE DU LOUP AND HADLOW—heavy general repairs were made to the masonry on the line.

GENERAL.

Five spans of iron, ranging from 12 to 22 feet, were put in place of wooden stringers at various points on the line.

Gangs of painters and rivetters were engaged the whole season in painting and doing general repairs to iron structures.

BRANCH LINES.

The ST. CHARLES BRANCH has been opened for traffic.

At POINTE LÉVIS—the grading of the “Pond” was completed and a number of sidings put in.

Some snow shedding and fencing and other necessary work remain to be completed.

RIVIÈRE DU LOUP TOWN BRANCH.

The contract for grading this branch, referred to in my Report for last year, has been completed. The track has also been laid and ballasted.

DARTMOUTH BRANCH.

The bridge at the NARROWS—referred to in my Report of last year was completed in December last, also the grading throughout its whole length. A portion of the tracklaying and ballasting remained to be completed at the end of the year.

INDIANTOWN BRANCH.

The grading of this branch is far advanced toward completion. Arrangements are being made for combined passenger and freight stations to be erected at Millerton and at Indiantown.

This Branch extends from Derby Station on the main line to Indiantown on the Miramichi River, a distance of 13 miles. The track is being laid.

I am, Sir,

Your obedient servant,

P. S. ARCHIBALD,
Chief Engineer.

D. POTTINGER, Esq.,
Chief Superintendent,
Moncton, N. B.

INTERCOLONIAL RAILWAY.

MONCTON, N.B., 15th September, 1885.

DEAR SIR,—I beg to submit for your information the following statements, showing the operations of the Mechanical Department for the year ending 30th June, 1885 :—

A.—Statement showing the number of locomotives and the various classes of cars.

B.—Statement showing the locomotive and car mileages, and the average number of passenger and freight cars handled per mile run by engines

C.—Abstract of locomotive returns.

D.—Statement of the cost of locomotive power for each month during the year.

E.—General statement of the expenses of the Mechanical Department.

During the year there were purchased on account of capital, two first class cars, one platform car, 450 20-ton coal cars. There were rebuilt during the year, two platform cars, 320 improved 6-ton hopper cars to take the place of an equal number of hopper cars condemned. The rolling stock generally is in good condition.

WATER SERVICES.

At West Cock, Spring Hill and Stellarton, fifty thousand gallon tanks were erected, the two former supplied with steam pumps, and the latter is fed by gravitation.

The cost of erecting these was about \$6,300.

At Campbellton, St. Flavie, L'Islet, St. Aloïse, Weldford and Hampton, it is proposed to erect new 50,000-gallon tanks. When this work is completed the water service will be in a greatly improved condition.

I am, Sir,

Your obedient servant,

H. A. WHITNEY,
Mechanical Superintendent.

D. POTTINGER, Esq.,
Chief Superintendent,
Moncton, N.B.

A.—INTERCOLONIAL RAILWAY.

STATEMENT showing the number of Locomotives and the various classes of Cars on the 1st July, 1884, and on the 30th June, 1885.

The Various Classes of Cars.																
Locomotives.	First Class Passenger.	Second Class Passenger.	Postal and Smoking.	Baggage and Express.	Vans.	Box.	Cattle.	Platform—10, 15 and 20 tons.	Hoppers—5 and 6 tons.	Gondolas—20 tons.	Coal cars—20 tons.	Total.	Snow Ploughs.	Wing Ploughs.	Flangers.	Total.
On hand, 1st July, 1884, serviceable	68	75	17	26	48	1,456	69	1,439	595	782	.....	4,578	30	10	20	60
do do condemned .....	.....	.....	.....	1	3	1	3	2	.....	1	.....	11	.....	.....	.....	.....
Total	68	75	17	30	51	1,457	72	1,441	595	783	.....	4,589	30	10	20	60
Purchased on Capital Account.....	2	.....	.....	4	4	.....	.....	1	.....	.....	450	.....	.....	.....	.....	.....
do Changed from baggage and express to vans.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total, 30th June, 1885.....	163	75	17	26	55	1,457	72	1,442	595	783	450	5,042	30	10	20	60
Condemned on hand, 1st July, 1884.....	.....	.....	.....	1	3	1	3	2	.....	1	.....	11	.....	.....	.....	.....
do during the year.....	1	2	.....	.....	2	21	1	83	320	2	.....	432	.....	.....	.....	.....
Total condemned.....	1	2	.....	1	5	22	4	86	320	3	.....	443	.....	.....	.....	.....
Less—Re-built .....	.....	.....	.....	.....	.....	.....	.....	2	320	.....	.....	322	.....	.....	.....	.....
Condemned, 30th June, 1885.....	1	2	.....	1	5	22	4	83	.....	3	.....	121	.....	.....	.....	.....
do Add—Serviceable and repairing.....	163	73	17	25	50	1,435	68	1,359	59	780	450	4,921	.....	.....	.....	.....
Total stock, 30th June, 1885.....	163	75	17	26	55	1,457	72	1,442	595	783	450	5,042	.....	.....	.....	.....

B.—INTERCOLONIAL RAILWAY.
STATEMENT of Locomotive and Car Mileage for Year ending 30th June, 1885.

Months.	Locomotive Mileage.		Car Mileage.					Snow Ploughs.	
	Passenger.	Freight.	Passenger.	Express, Postal and Baggage.	Freight.	Total.	Average Passenger.		Average Freight.
1884—July	89,319	230,159	390,506	180,562	3,247,098	3,818,166	6·57	14·11	.....
August	87,842	219,114	400,425	167,655	3,197,679	3,765,759	6·46	14·60	.....
September	80,977	219,196	374,680	168,350	3,208,918	3,751,848	6·70	14·64	.....
October	83,000	262,402	343,794	160,835	3,971,136	4,475,765	6·08	15·13	.....
November	75,495	261,108	299,896	148,442	3,866,050	4,314,388	5·93	14·80	.....
December	72,156	252,252	299,751	154,033	3,380,736	3,834,520	6·28	13·40	4·463
1885—January	71,228	236,450	286,962	148,678	2,965,531	3,401,171	6·11	12·54	7·584
February	65,043	220,266	237,513	135,596	2,776,434	3,149,543	5·73	12·60	14·347
March	68,754	242,002	277,583	144,226	3,235,065	3,656,874	6·12	13·36	11·857
April	72,242	310,284	322,615	154,179	4,419,452	4,896,246	6·60	14·24	3·748
May	68,449	265,811	288,389	140,094	4,024,460	4,452,943	6·25	15·06	·308
June	80,546	250,162	310,231	152,612	3,611,127	4,073,970	5·74	14·43	·448
Total	915,051	2,969,206	3,832,245	1,855,262	41,903,686	47,591,193	6·22	14·11	42·755

C.—INTERCOLONIAL RAILWAY.

ABSTRACT of Locomotive Returns for Year ending June 30th, 1885.

Months.	Hours in Steam.	Locomo- tive Mileage.	Consumption.				Average Consumption per 100 Miles.				
			Tons of Coal.	Pints of Oil.	Pounds Tallow.	Pounds Waste.	Miles Run to hour in Steam.	Pou'ds Coal.	Pints Oil.	Pounds Tallow.	Pounds Waste.
1884—July	35,391	383,784	9,561	27,306	11,272	6,670	10.84	5,580	7.11	2.94	1.74
August.....	34,530	369,408	9,439	26,529	12,826	6,618	10.70	5,724	7.18	3.47	1.79
September	34,232	364,477	9,486	25,370	12,603	6,667	10.65	5,830	6.96	3.46	1.83
October.	40,099	416,562	11,687	26,637	14,188	7,429	10.39	6,285	6.39	3.41	1.78
November.....	40,064	408,566	11,637	24,926	12,994	6,580	10.20	6,380	6.10	3.18	1.61
December.	40,654	403,899	11,409	24,984	12,687	7,005	9.94	6,327	6.19	3.14	1.73
1885—January	40,288	3 4 749	11,539	23,948	11,581	6,533	9.80	6,548	6.07	2.93	1.65
February.....	41,163	379,986	11,218	24,681	11,459	5,989	9.23	6,613	6.50	3.02	1.58
March	47,443	423,601	12,512	25,630	12,539	6,701	8.93	6,616	6.03	2.96	1.58
April.	49,275	477,550	13,049	31,069	13,070	7,469	9.69	6,121	6.51	2.74	1.57
May	40,121	409,471	10,441	25,755	12,282	7,196	10.21	5,712	6.29	3.00	1.76
June.....	38,065	404,874	10,037	26,900	12,454	7,131	10.64	5,553	6.64	3.08	1.76
Total.....	481,325	4,836,927	132,015	313,835	148,955	82,008	10.05	6,114	6.48	3.10	1.70

D.—INTERCOLONIAL RAILWAY.

STATEMENT of the cost of Locomotive Power for each month, from 1st July, 1884, to 30th June, 1885.

Months.	Miles run by Engines.	Driver's and Fireman's Wages.	Fuel.	Oil, Tallow and Waste.	Repairs to Engines, Tenders and Tools.	Water.	Miscella- neous, including Engine- houses and Staff.	Total.	Averages per 100 Miles.						
									Wages.	Fuel.	Oil, Tallow and Waste.	Repairs.	Water.	Miscellaneous.	Total.
		\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
1884—July.	383,784	14,855 23	24,691 34	4,122 15	15,789 60	1,184 19	2,967 48	63,609 99	3 99	6 43	1 06	4 11	0 31	0 78	16 58
August.	369,408	13,635 13	22,798 97	4,054 05	12,302 29	2,184 09	3,637 33	58,601 86	3 69	6 16	1 09	3 34	0 59	0 99	15 86
September.	364,477	13,967 01	23,040 81	3,896 70	18,589 70	1,443 55	3,797 95	64,735 72	3 83	6 34	1 06	5 10	0 39	1 04	17 76
October.	416,562	15,895 45	30,275 71	4,492 63	18,486 10	1,534 99	4,535 55	76,220 43	3 81	7 27	1 08	4 44	0 37	1 09	18 06
November.	408,666	15,361 85	31,501 43	4,424 47	18,708 05	4,297 74	3,770 66	78,064 20	3 76	7 71	1 08	4 58	1 05	0 92	19 10
December.	403,899	15,563 68	20,351 25	4,528 99	14,350 72	2,976 80	4,672 97	62,444 41	3 85	5 04	1 12	3 55	0 74	1 16	15 45
1885—January.	394,749	16,109 83	21,345 23	3,333 51	10,447 72	2,258 05	3,320 94	56,815 28	4 08	5 42	0 84	2 65	0 57	0 84	14 40
February.	379,986	15,086 67	20,136 6	2,882 87	8,332 58	1,280 66	1,729 30	49,448 69	3 97	5 30	0 76	2 19	0 34	0 45	13 01
March.	423,601	15,009 15	21,977 17	3,317 45	9,378 59	3,139 51	2,123 29	56,945 16	3 78	5 19	0 78	2 21	0 74	0 74	13 44
April.	477,550	18,750 06	24,361 62	3,628 61	9,456 38	1,642 08	2,717 22	60,555 97	3 92	5 10	0 75	1 98	0 34	0 59	12 68
May.	409,471	16,272 75	18,750 49	4,354 48	12,316 49	1,077 49	3,510 74	56,282 44	3 97	4 58	1 06	3 01	0 26	0 86	13 74
June.	404,874	15,225 75	17,360 02	3,871 38	8,839 88	1,669 00	2,576 70	49,542 73	3 76	4 29	0 96	2 18	0 41	0 64	12 24
Total ...	4,836,927	186,732 56	276,580 65	46,997 29	156,998 10	24,688 15	40,360 13	732,266 88	3 86	5 72	0 97	3 25	0 51	0 83	15 14

E.—INTERCOLONIAL RAILWAY.

GENERAL STATEMENT of the Expenses of the Mechanical Department, for the Year ending 30th June, 1885.

	\$	cts.
The miles run by trains were.....	3,992,506	
do engines were	4,836,927	
do cars were.....	47,591,193	
do snow ploughs were	42,755	
The cost of locomotive power.....	732,266	88
The cost of car repairs :		
Repairs to passenger cars	56,318	80
do postage, express and baggage cars	20,353	40
do freight cars and vans	197,650	68
Oil and waste for packing.....	26,978	64
Miscellaneous.....	181	74
The cost of locomotive power per 100 miles run by trains was.....	18	34
do do do engines	15	14
do do do cars.....	1	54
The cost of repairs to cars per 100 miles run by trains was	6	87
do do engines	5	67
do do cars.....	0	57
The cost of oil and waste for packing per 100 miles run by trains was.....	0	68
do do engines	0	56
do do cars	0	06
The cost of repairs to passenger cars per 100 miles run by them was	1	46
do postal, express and baggage do	1	09
do freight cars and vans do	0	47

No. 1. —INTERCOLONIAL RAILWAY.
CAPITAL ACCOUNT, Year ending 30th June, 1885.

Dr.

Cr.

1884. June 30....	1885. June 30....		\$ cts.	\$ cts.	1884. June 30....	\$ cts.	By Dominion of Canada..	\$ cts.
To Cost of Road and Equipment.....			42,582,231 71					42,577,316 49
Less—Refunds on account of previous years' expenditure.....			4,915 22					
Outlay on Halifax Extension.....				16,580 01				
do Increased accommodation St. John				116,732 68				
do St. Charles Branch and Ferry.....				133,312 69				
do Dartmouth do.....				238,659 21				
do Rivière du Loup Town Branch....				164,456 75				
do Dalhousie Branch.....				46,256 01				
do Indian Town Branch.....				52,723 78				
do St. Charles Branch Shunting Station Yard.....				48,497 48				
do Paspébiac Branch.....				18,466 50				
Legal expenses, Halifax Street Railway vs. The Queen.....				4,167 21				
Awards by I. C. R. Commissioners.....				182 95				
Miscellaneous works not otherwise provided for.....				49,761 00				
Additional rolling stock.....				407 36				
Additional coal cars.....				41,793 97				
Expenditure on completion of Intercolonial Railway between Rivière du Loup and Truro—works, permanent way, buildings, right of way, &c.....				245,420 00				
				6,173 39				
					1885. June 30....	1,050,278 30	By Dominion of Canada..	1,050,278 30
								43,627,594 79

MONCTON, N.B., 30th June, 1885.

THOMAS WILLIAMS,
Chief Accountant and Treasurer.

No. 3.—INTERCOLONIAL RAILWAY.

LOCOMOTIVE POWER—(Abstract No. 1.)

Previous Year.		Year ending 30th June, 1885.
\$ cts.		\$ cts.
7,820 65	Mechanical Superintendent's salary, Clerk's Office and Travelling expenses.....	7,838 37
175,444 71	Wages, Drivers, Firemen and Cleaners	186,732 56
265,551 75	Fuel.....	276,580 65
50,232 96	Oil, Tallow, Waste and small Stores.....	46,907 29
178,909 93	Repairs to Engines, Tenders and Engine Tools	156,998 10
38,702 29	Water, including Pump and Tank repairs.....	24,688 15
40,500 20	Miscellaneous	32,521 76
757,162 49		732,266 88

THOMAS WILLIAMS,

Chief Accountant and Treasurer.

MONCTON, N.B., 30th June, 1885.

No. 4.—INTERCOLONIAL RAILWAY.

CAR EXPENSES—(Abstract No. 2.)

Previous Year.		Year ending 30th June, 1885.
\$ cts.		\$ cts.
62,522 38	Repairs to Passenger cars.	56,318 80
18,203 49	do Postal, Express and Baggage cars.	20,353 40
181,146 73	do Freight cars and Vans	197,650 68
177,628 79	Wages of Conductors, Train Baggage Masters and Brakesmen.	194,029 06
33,097 86	Oil and Waste for packing	26,978 64
42,441 72	Small Stores and Fuel	45,531 65
16,174 94	Miscellaneous	14,704 08
531,215 91		555,566 31

THOMAS WILLIAMS,

Chief Accountant and Treasurer.

MONCTON, N.B., 30th June, 1885.

No. 5.—INTERCOLONIAL RAILWAY.

MAINTENANCE OF WAY AND WORKS—(Abstract No. 3).

Previous Year.		Year ending 30th June, 1885.
\$ cts.		\$ cts.
3,804 73	Chief and Assistant Engineer, Salaries, Clerks, Office and Travelling expenses.....	4,911 35
280,153 41	Wages in repairing Roadway, Fences and Semaphores, including new Sidings laid in.....	300,441 53
18,770 54	Rails and Fastenings, including new Sidings laid in	55,788 79
46,968 78	Sleepers.....	41,665 65
38,792 39	Timber, Lumber, etc., for repairs to Bridges, Cattle Guards, Crossings, Snow-sheds, Fences, etc.....	71,307 08
6,686 48	Repairs to Wharves	13,419 67
105,929 71	Repairs to Buildings and Platforms, including extensions of and additions to same.....	90,061 43
15,738 56	Repairs to Snow Ploughs, Flangers and Tools.....	17,988 91
41,660 32	Clearing Ice and Snow.....	58,081 15
2,296 26	Miscellaneous.....	3,939 47
560,801 18		657,605 08

THOMAS WILLIAMS,

Chief Accountant and Treasurer.

MONCTON, N.B., 30th June, 1885.

No. 6.—INTERCOLONIAL RAILWAY.

STATION EXPENSES—(Abstract No. 4).

Previous Year.		Year ending 30th June, 1885.
\$ cts.		\$ cts.
254,396 66	Salaries and Wages of Station Masters, Agents, Clerks, Telegraph Operators, Station Baggage Masters, Switchmen, Watchmen and Laborers and Yard Masters.....	260,440 86
71,476 44	Fuel, Oil, Light, Stationery, Tickets and other incidental expenses.....	67,446 28
325,873 10	Miscellaneous.....	327,887 14

THOMAS WILLIAMS,

Chief Accountant and Treasurer.

MONCTON, N.B., 30th June, 1885.

No. 7.—INTERCOLONIAL RAILWAY.
GENERAL CHARGES—(Abstract No. 5).

Previous Year.		Year ending 30th June, 1885.
\$ cts.		\$ cts.
63,016 07	Chief Superintendent, District Superintendents, Train Despatchers, General Freight Agent, General Passenger Agent, Clerks, office and travelling expenses	65,415 42
19,448 87	Accounting Department—Salaries of the Chief Accountant and Treas- urer, Traffic Auditor, Paymaster, Cashier, Clerks, office and travelling expenses.. ..	20,392 93
17,083 30	Damages to men, animals and goods.	10,025 41
22,566 09	Ferry service.....	21,311 67
2,261 93	Telegraph expenses (not including pay to operators)....	4,346 87
31,107 32	Miscellaneous—Printing, advertising, &c.	25,982 76
15,893 12	Agency expenses	13,855 10
171,376 70		161,330 16
400 00	Special vote, Mrs. E. C. Ennis, Indemnity for injuries to her late hus- band, E. C. Ennis	
171,776 70		161,330 16

THOMAS WILLIAMS,

Chief Accountant and Treasurer.

MONCTON, N.B., 30th June, 1885.

No. 8.—INTERCOLONIAL RAILWAY.

GENERAL STORES ACCOUNT, Year ending 30th June, 1885.

Dr.

Cr.

		\$	cts.		\$	cts.
1884.						
June 30....	To balance.....			By Issues during year.....	1,122,839 31	
				Old material sold.....	69,483 56	
1885.						1,192,322 87
June 30....	Purchases during year.....	766 090 31		Balance—	413,994 87	
	Labor do.....	41,344 01		Ordinary Stores, including Fuel		
	Charges from other Departments.	258,538 79		Iron and Steel Rails and Fastenings.....	125,400 05	
	Staff pay-rolls.....	12,613 12		Second-hand material, serviceable.....	58,454 35	
				Old material for sale.....	125,935 00	
						723,784 27
						1,916,107 14

42

THOMAS WILLIAMS,

Chief Accountant and Treasurer.

MONCTON, N.B., 30th June, 1885.

No. 9.--INTERCOLONIAL RAILWAY.

GENERAL BALANCE, 30th June, 1885.

DR.

CR.

	\$	cts.	\$	cts.
Cash.....			33,935	91
General Stores :—				
Ordinary stores, including fuel.....	413,994	87		
Iron and steel rails and fastenings.....	126,400	06		
Second hand material, serviceable.....	58,454	35		
Old material for sale.....	125,935	00		
Stations.....			723,784	27
Rents.....			77,242	14
Accident insurance.....			1,496	69
Unclaimed freight.....			16,560	63
Grand Trunk Railway, general account.....	9,561	44	272	21
do traffic account.....	8,045	47		
Windsor and Annapolis Railway, new account.....			17,596	91
do old account.....	862	08		
Spring Hill and Parrishboro' Railway.....			7,546	54
Western Counties Railway, general account.....	15,893	35	3,161	99
do traffic account.....	1,657	42		
Windsor Branch Railway.....			17,550	77
Prince Edward Island Railway.....			545	95
St. Martin's and Upham Railway.....			2,486	13
Elgin Branch Railway.....			4,107	39
Canadian Pacific Railway, old account.....			736	10
do do.....			123	70
Oxford Branch Railway.....			3,961	59
Halifax and Cape Breton Railway.....			12,324	80
Chatham Branch Railway.....			1,546	82
Nova Scotia, or Eastern Extension Railway.....			1,565	27
Quebec Central Railway.....			2,158	27
Northern and Western Railway of New Brunswick.....			879	07
Cararquet Branch Railway.....			174	18
New Brunswick and Prince Edward Island Railway.....			75	50
Cumberland Railway and Coal Co.....			20,501	93
Great Eastern Line.....			684	84
Acadia Coal Co.....			2	00
			3,220	77

Carried forward

Carried forward

Dominion of Canada.....
 Suspense Account.....
 Prince Edward Island Steam Navigation Co.....

\$ cts.
 1,081,347 42
 2,557 03
 54 54

No. 9.—INTERCOLONIAL RAILWAY.—*Concluded.*
GENERAL BALANCE, 30th June, 1885.—*Concluded.*

DR.

Brought forward.....	\$	cts.	\$	cts.	Brought forward.....	\$	cts.
Intercolonial Coal Co.	700	48					
Vale Coal and Iron Co.	232	35					
Steel Company of Canada.	22,033	09					
Intercolonial Express Co.	1,481	88					
Moncton Sugar Refining Co.	9,445	18					
Halifax Cotton Co., siding.....	11,863	38					
Canadian Locomotive and Engine Co.	30	50					
Moncton Cotton Co., siding.....	790	53					
Pullman Palace Car Co.	281	45					
Goldbrook Rolling Mills.	1,967	41					
Schooner "Mary Jane".	71	30					
Bloomfield Station Coal Branch Station	25	21					
Weldford Station Ste. Lucie Station	65	84					
Bic Station St. Arsène Station.....	55	00					
National Car Co. Steamer "Contest"	80	00					
Dredge "Canada". Steamer "Admiral" and owners.....	22	00					
Departmental Accounts:— Post Office	27	00					
Militia..... Agriculture	8	00					
Interior	1,348	75					
Dorchester Penitentiary	82	50					
	0	53					
Individual accounts.....	59,641	36					
	18,394	56					
	1,083,958	99					
							1,083,958 99

MONCTON, N.B., 30th June, 1885

THOMAS WILLIAMS,
Chief Accountant and Treasurer.

No. 10.—INTERCOLONIAL RAILWAY.

COMPARATIVE STATEMENT of Averages, Year ending 30th June, 1885.

	1885.	1884.
Mileage of railway.....	861	840
Engine mileage.....	4,836,927	4,407,655
Train do	3,992,506	3,653,961
Car do	47,591,193	41,741,080
Receipts per engine mile	\$ cts 48 96	\$ cts 53 40
do mile of railway.....	2,750 47	2,801 96
Percentage of passenger earnings to gross earnings.....	Per cent 29 98	Per cent 32 29
do freight do od	64 04	61 67
do other do do	5 98	6 04
Expenses per engine mile—		
Drivers, Firemen and Cleaners' wages.....	3 86	3 98
Fuel	5 72	6 02
Oil, tallow, waste and small stores.....	97	1 14
Repairs to engines.....	3 25	4 06
Water and tank repairs.....	51	88
Miscellaneous	67	92
Total.....	14 98	17 00
Mechanical Superintendent's salary, office and travelling expenses.....	16	18
	15 14	17 18
Locomotive power per engine mile.....	15 14	17 18
Car expenses do	11 49	12 05
Maintenance of way and works do	13 59	12 72
Station expenses do	6 78	7 39
General charges do	3 33	3 90
Car mileage.....	50 33 14	53 24 Cr. 05
Total per engine mile.....	50 47	53 19
Locomotive power per train mile.....	18 34	20 72
Car expenses do	13 92	14 54
Maintenance of way and works do	16 47	15 35
Station expenses do	8 21	8 92
General charges do	4 04	4 70
Car mileage.....	60 98 17	64 23 Cr. 06
Total per train mile	61 15	64 17
Working expenses per mile of railway.....	\$2,835 63	\$2,791 16

THOMAS WILLIAMS,

Chief Accountant and Treasurer.

MONCTON, N.B., 30th June, 1885.

INTERCOLONIAL

RETURN of Accidents and Casualties which have occurred on the Line

(This Return is made up in compliance with the Provisions

Date.	Time of Day or Night.	Number of Train.	Description of Train.	Name of Conductor.	Name of Driver.	No. of Engine.
1884.						
July 2...	4.45 p.m.	.....	Shunting.....	.....	P. Fogarty	34
do 4...	2.00 p.m.	.....	do	O. Upham	M. Tobin	98
do 5...	8.10 a.m.	Special..	Freight	James Daley.....	G. Milne.....	127
do 10...	6.55 p.m.	do ...	Ballast.....	A. Moreau.....	J. Valcourt.....	76
do 12...	5.25 p.m.	do ...	Freight	O. B. Humphrey	Neil McLean.....	37
do 14 ..	9.00 a.m.	do ...	do	Geo. Logan	F. Probert	67
do 15...	9.12 a.m.	41	do	F. Dumond.....	A. Sharp.....	140
do 17...	9.10 a.m.	40	do	A. McPherson	E. S. White.....	138
do 19...	2.35 p.m.	41	do	D. Morin	Jas. Scott	111
do 22...	2.24 p.m.	.....	Shunting.....	.....	P. Fogarty	34
do 24...	11.47 p.m.	45	Freight	B. Walker.....	S. Jolivet	45
do 25...	11.00 a.m.	Special..	Ballast.....	E. S. Vye	W. E. Turner	143
do 26...	10.25 p.m.	do ...	Freight	C. A. Atkinson	J. McQuiggan	30
do 27...	7.00 a.m.	do ...	do .....	.....	Stratton J. Cook	144, 41
do 30...	3.30 p.m.	do ...	do	Geo. Logan	B. Cook.....	7
do 30...	9.50 a.m.	18	do	J. W. Miller.....	G. Feetham	9
July 31...	12.00 p.m.	Special.	Rail train	Albert Davison.....	Samuel Wilson	44
Aug. 9...	12.20 p.m.	20	Freight	Geo. W. McCully.....	— McCarthy.....	145
do 11...	8.20 p.m.	Special.	Special.....	N. McPherson	D. Pineo.....	66
do 14...	8.35 p.m.	33	Express	F. Derouin	G. Cameron	133

RAILWAY.

of the Intercolonial Railway, during the Year ending 30th June, 1885.

of the Railway Act of 1868, 31 Vic., cap. 68, sec. 43.)

Place of Accident.	Name of Person Injured.	Whether Passenger or Employé.	Particulars of Accident.	Extent of Injury.	Verdict of Coroner's Jury.
Moncton	Wm. Fogarty...	Employé..	While coupling, finger injured.	Slightly bruised.	
Richmond	Wm. Hinch.....	do ...	While coupling, hand crushed.	Badly bruised....	
Painsec	John Carroll ...	do ...	While coupling, hand injured.	do	
St. Charles Branch.	Alf. Bégin.....	do ...	While getting on ballast train fell between cars and had arm and leg broken and head cut.	1 arm and 1 leg broken, head badly cut.	
Dickey's Siding..	Mr. Hunter.....	Neither...	Train collided with platform, tearing it up.	Head cut	
Miller's Siding...	Sedley Johnson	Employé.	While shunting.....	Slightly bruised.	
2 miles east Capsascal.	Samuel Dupère	do ...	Hand car on which he was riding struck by train.	Leg broken, head cut and arm bruised	
Coal Branch.....	Chs. Campbell.	do ...	Coupling cars	Arm crushed	
Rimouski.....	— Martin (little boy).	Neither...	Found between main line and siding.	Leg broken.	
Moncton.....	C. Myshraill....	Employé.	Coupling cars	Hand injured....	
St. Philippe de Néri.	E. Sandon	do ...	While going round engine, fell into culvert.	Both legs hurt...	
Charlo	Alex. McIntyre.	do ...	Caught foot in guard rail.	Ankle sprained.	
1 mile west of Weldford.	James Reed. ...	Neither...	Attempting to cross in front of train.	Fatal.....	Accidental.
Moncton	M. Lockhart....	Employé..	Attempting to get on train.	Knee hurt	
River Philip grade.	H. R. Black	Neither ...	Getting off train in motion.	Leg broken.....	
Malcolm's Siding	G. McElhenny.	Employé..	Coupling cars.....	Hand bruised ...	
Moncton	W. Marshall....	Employé..	Coupling car to engine...	Back hurt	
Nappan	Benj. Peterson.	do ...	Loading plaster.	Finger jammed ..	
New Mills	Jas. McMillan .	Neither...	Attempting to cross in front of train, was struck by engine.	Arm broken and head cut.	
Trois Pistoles...	Théo. Bélanger (child).	do	While standing on track was struck by train.	Not seriously injured.	

INTERCOLONIAL

RETURN of Accidents and Casualties which have occurred

Date.	Time of Day or Night.	Number of Train.	Description of Train.	Name of Conductor.	Name of Driver.	No. of Engine.
1884.						
Aug. 18...	3.00 a.m. ....	.....	Shunting	C. Candle, Stat. Mast'r	John Leonard	95
do 20...	9.30 p.m.	Special.	Freight	J. W. Henderson.....	N. Sinclair	108
do 23...	2.00 p.m.	do ..	do	Wm. Crockett.....	Geo. Manning	37
do 25...	10.00 a.m. ....	.....	Shunter .....	.....	J. McDermott.....	99
do 26...	11.00 a.m. ....	.....	do .....	.....	R. James.....	100
do 29...	6.10 p.m.	Special.	Ballast	A. Bouchard	Jas. Valcourt.....	16
Sept. 1...	.....	do ..	Coal	A. B. Vance.....	— Ferguson	125
do 2...	9.35 p.m.	44	Freight	G. Maxwell	J. Miller.....	1
do 2...	8.00 a.m.	42	do	D. Morin	Jas. Scott	6
do 3 & 4..	Bet. 11 p.m. & 4 a.m. ....	.....	.....	.....	.....	.....
do 3 & 4..	do ..	.....	.....	.....	.....	.....
do 5...	8.00 p.m.	Special.	Freight	J. B. Chatigny.....	J. G. McDonald	103
do 6...	10.20 p.m.	9	Express	Jas. Millican.....	A. Donald.....	150
do 13...	11.00 p.m.	44	Freight	H. Aubin.....	N. Parcau.....	17
do 14...	12.21 a.m.	39	do	M. Cummings	S. Wilson	44
do 20...	2.50 p.m.	Special	Ballast	E. S. Vye	P. H. Moore	138
do 20...	.....	do ..	Freight.....	A. Chamberland.....	L. Boulé.....	117
do 24...	.....	do ..	do	do	— Bernier	30
do 26...	7.00 a.m.	36	Accommodation.	N. McDougall	W. D. Martin	42
Oct. 5...	3.30 p.m. ....	.....	Shunter .....	.....	Jas. Langlois.....	14
do 6...	4.00 p.m. ....	.....	do .....	.....	A. B. White .....	.....

RAILWAY.

on the Line of the Intercolonial Railway, &c.—*Continued.*

Place of Accident.	Name of Person Injured.	Whether Passenger or Employé.	Particulars of Accident.	Extent of Injury.	Verdict of Coroner's Jury.
Truro	Jas. Whalley...	Employé..	Coupling cars.....	Thigh injured....	
Canaan	Geo. McGinn...	do ...	do	Arm bruised.....	
4 miles west of Berry's Mills.	— Turner (child).	Neither...	While sitting on side of track was struck by train.	Not seriously hurt.	
Moncton	Joseph Fenton.	Employé..	Coupling cars	Finger crushed..	
St. John.....	Chas. James...	do ...	do	Chest jammed ...	
3 miles east of Point Levis.	Philéas Guay...	do ...	Train struck hand car on which he was riding.	Slightly hurt...	
Drummond Sid-ing.	A. B. Vance...	do ...	Slipped when getting off van.	Leg injured	
St. Fabien.....	Auguste Rioux.	do ...	Coupling cars	Arm crushed. ...	
St. Arsène.....	Henri Michaud.	do ...	Unloading freight, puncheon of molasses rolled on him.	Body injured. ...	
Near Norton.....	Ths. Nickerson.	Neither...	Lying on track intoxicated.	Foot taken off...	
do	Wm. Hogan...	do ...	do do ...	Fatal	Accidental.
½ mile east of Cedar Hall.	Baptiste Dubé.	Employé..	Fell off cars	Slightly injured.	
Thomson	Sedley Johnson	do ...	Supposed to have been lying on track, struck by train.	Fatal	do
Ste. Luce.....	Aug. Courbron	do ...	Walking round train, fell into culvert.	Knee hurt	
Weldford.....	Albert Hope...	do ...	Fell off box car on to end of draw bar.	Shoulder hurt...	
3 miles west of New Mills.	Benj. Braham..	Neither ...	Fell between cars.....	Arm cut off.....	
Ste. Anne	E. Jean.	Employé.	Coupling cars	1 finger crushed.	
L'Islet	F. Beaubien ...	do ...	Taking off brakes, slipped	Knee hurt	
Charlo Tank...	{ Mrs. Taylor ... Mr. Metzler..... Dr. Harris.....	{ Passenger do ... do ...	{ Broken rail threw first-class car off. }	{ Face scratched.. Side bruised..... 1 finger cut.....	
Chaudière	J. St. Ange.....	Employé..	Coupling cars	Hand caught, lost part finger.	
Moncton.....	G. Armstrong.	do ...	do	Hand torn.....	

INTERCOLONIAL

RETURN of Accidents and Casualties which have occurred

Date.	Time of Day or Night.	Number of Train.	Description of Train.	Name of Conductor.	Name of Driver.	No. of Engine.
1884.						
Oct. 7...	6.30 p.m.	Special.	Freight.....	J. H. Henderson	Geo. Manning	20
do 10...	.....	do ..	do	W. M. Thomson.....	N. Sinclair	37
do 11...	10.00 a.m.	19	Express	E. O. Davidson.....	J. McDowell.....	72
do 16...	2.15 p.m.	Special.	Freight	John Casey	J. Cook	127
do 23...	1.00 a.m.	.....	do	C. Quimper.....	J. Oakleaf.....	2
do 20...	10.15 p.m.	.....	do	Geo. Logan	J. Ferguson	97
do 24...	8.50 p.m.	.....	Shunter .....	.....	M. White	18
do 28...	4.30 p.m.	.....	Freight	E. S. Vye.	J. Rolston.....	142
do 28...	9.20 a.m.	.....	do	B. Walker	W. Brock	77
Nov. 3...	5.00 p.m.	.....	.....	.....	.....	.....
do 6...	4.30 a.m.	Special.	Passenger cars...	T. Bouchard.....	J. Miller.....	1 {
do 6...	12.00 noon	.....	.....	.....	.....	.....
Nov. 7...	7.00 a.m.	14	Accommodation.	W. H. Donkin	G. Feetham	56
do 7...	6.23 p.m.	12	Freight	R. A. Rannie	W. J. Hunter	43
do 10...	2.40 p.m.	11	do	A. W. Melick	Geo. McAuley	51
do 11...	1.45 a.m.	31	Express	A. E. Olive.....	J. Brownell.....	148
do 11...	7.00 a.m.	.....	.....	.....	.....	.....
do 11...	8.30 a.m.	Special..	Freight.....	G. Langlais	A. J. Sharp.....	146
do 17...	2.05 p.m.	11	do	A. W. Melick	S. Watson	51
do 19...	3.15 p.m.	31	Express.....	E. McKenna	C. E. Sawyer ...	133
do 22...	9.00 p.m.	.....	.....	.....	J. Robert	8
do 23...	.....	.....	.....	.....	.....	.....

RAILWAY.

on the Line of the Intercolonial Railway, &c.—*Continued.*

Place of Accident.	Name of Person Injured.	Whether Passenger or Employé.	Particulars of Accident.	Extent of Injury.	Verdict of Coroner's Jury.
Derby	W. B. Thomson	do ...	do	Hand jammed....	
Newcastle	John B. Cook..	do ...	Shunting	Ankle sprained .	
Truro	J. A. McDonald	Passenger	Got on wrong car, and in getting off	Broke and dislocated ankle, causing lameness.	
Memramcook	M. Connolly....	Employé..	Pulling down semaphore.	1 finger bursted.	
Ste. Flavie	Chas. Lepage...	do ...	Running to get on train, fell.	Arm broken	
Bedford	Wm. Sweeney.	Neither....	Lying on track	Fatal	Accidental.
Moncton.....	Jas. Lockhart.	Employé..	Coupling cars	Leg jammed.....	
Joal Branch.....	S. Hillson.	do ...	Fell off car	Leg hurt	
Levis.....	A. B. Dionne...	do ...	Coupling cars ...	Chest squeezed..	
Richmond	Hedley Walker	Neither....	Entering hole below floor and inside of freight shed on wharf, fell into dock.	Drowned	do
Between Bic and Rimouski.	Ovide Perron— Lefèvre.....	Employé .. Neither. ...	} Ran into washout.....	{ Slightly hurt.... Shoulder dislocated.	
Truro yard	Wm. Lee (child).	do ...			
Winfield	Thos. Johnson.	Employé .	Got hand caught in car door.	Finger hurt.....	
Bothesay	John Henderson	do ...	Jumped off car	Ankle sprained..	
Sauwigewauk ...	Fred. Palmer...	do ...	Unloading freight.....	Wrist sprained ..	
Moncton	P. C. Ayer	do ...	Coupling cars	Hand smashed...	
St. John.....	Wm. Kelly	do ...	Unloading baggage, fell on track.	Side slightly injured.	
St. Flavie	— Couillard ...	do ...	Coupling cars	Lost tips 2 fingers	
Hampton.....	Irvine Deacon .	do ...	Fell between cars; train passed over him.	Fatal	Accidental.
Trois Pistoies ...	Achille Rioux...	Neither....	Attempting to take plank off track, was thrown against pile of lumber.	do	do
Moncton..	H. Wright	Employé..	Coupling cars	Chest jammed....	
Truro	Jas. Sutton.....	do ...	Fell off train.....	Head cut.....	

INTERCOLONIAL

RETURN of Accidents and Casualties which have occurred

Date.	Time of Day or Night.	Number of Train.	Description of Train.	Name of Conductor.	Name of Driver.	No. of Engine.
1884.						
Dec. 3...	3.30 a.m.	Special.	Freight ...	G. Margeson.....	J. Ferguson	35
do 4...	2.00 p.m.	.....	Shunting .....	.....	J. W. Boyd	95
do 9...	3.00 p.m.	.....	do .....	.....	A. LaCroix.....	96
do 10...	4.15 p.m.	.....	do .....	.....	E. Tobin	85
do 19...	9.00 p.m.	Special.	Freight	E. S. Watts.....	I. Grattan.....	114
do 19...	11.20 p.m.	.....	do	L. J. Paulet	I. Oaklet	2
do 22...	.....	.....	.....	.....	.....	.....
do 23...	Day	2	Express.....	G. H. Trueman ...	S. Trider.....	58
do 23...	.....	39	Freight	M. Cummings	T. Ashe	86
do 23...	5.30 a.m.	Special	do	A. V. Fiola.....	D. Gallan.....	28
do 23...	do ...	do ...	do	do	do	28
do 24...	11.15 p.m.	do ...	do	J. Daucett.....	J. McGuigan.....	47
do 27...	7.40 a.m.	34	Express	Thos. Corbett.....	J. Brownell	152
do 31...	.....	Special.	Freight	R. W. Vye.....	N. McLean.....	180
1885.						
Jan. 2...	12.45 p.m.	Special.	Freight.....	F. Bellemere.....	O. Jolivet.....	45
do 13...	9.40 p.m.	47	do	F. Derouin.....	A. Doig	3
do 19...	12.35 p.m.	41	do	M. Audet	W. Bastain....	154
do 20...	2.35 a.m.	33	Express.....	P. Corbett.....	I. Brownell	153
do 24...	12.30 p.m.	Special.	Freight.....	I. Craigie.....	I. Probert.....	39
do 26...	9.40 p.m.	do .	do	W.M. Thompson.....	James Cooke.....	141
Feb. 2...	11.30 p.m.	24	do	John Casey.....	D. A. Cameron	79
do 2...	3.20 a.m.	Special.	Snow train.....	.....	S. Prider.....	58
do 2...	8.00 p.m.	4	Accommodation.	John Fayden	M. F. Jones.....	53
do 3...	2.30 p.m.	45	do ...	Geo. Levesque.....	A. Dolg and P. Brenier	3 & 1

RAILWAY.

on the Line of the Intercolonial Railway, &c.—*Concluded.*

Place of Accident.	Name of Person Injured.	Whether Passenger or Employé	Particulars of Accident.	Extent of Injury.	Verdict of Coroner's Jury.
Spring Hill ...	Chas. Tupper...	do ...	Fell off tender taking coal	Head cut.....	Accidental.
Truro	Alex. Stevenson	do ...	Coupling cars.....	Finger smashed	
Chaudière	Chas. Morency.	do ...	Shunting, slipped and fell	Hurt internally..	
Richmond	E. M. Power ...	do ...	Coupling cars	Thumb and finger hurt.	
Rogerville.....	F. McClure.....	do ...	do	2 fingers off.....	
1½ mile east of Little Métis.	Anseline Turgeon.	do ...	Fell off train.....	Fatal	
St. John.....	R. Irvine.....	do ...	Coming out of shunter's house, steps gave away.	Both ankles hurt.	
Near Amherst ...	Miss Bella McDonald.	Passenger	While on train	Died from natural causes.	
Rogersville Tank	F. Dixon	Employé..	Fell off box car	Shoulder and chest hurt.	
Trois Pistoles ...	Geo. Beaubien.	do ...	Jumped from engine in collision.	Leg broken	
do ...	N. Handry	do ...	do	Hurt slightly.....	do
½ mile west of Berry's Mills.	W. Doyle.....	do ...	Fell off train.....	Fatal	
Newcastle	L. Connell ..	do ...	Uncoupling engine.....	Head badly hurt.	
Near Barnaby River.	J. Welsh	do ...	Applying brakes, spindle broke.	Back hurt	
St. Alexandre ...	Louis Ruaist...	Employé..	While coupling.....	Hand crushed...	
Rivière du Loup	Chas. Soucy...	do ...	Fell off box car	Hurt chest.....	
Sayabec.....	Alphonse Dion.	do ...	While coupling.....	Finger crushed.	
Newcastle.....	Wm. Gardner..	do ...	Fell off tender.....	Hurt side and shoulder.	
Spring Hill.....	N. Hopper.....	do ...	While coupling.....	Finger hurt.....	
Bartibogue.....	Martin Haley...	do ...	do	Hand jammed...	
Amherst.....	Martin Conelly	do ...	do	Hand injured...	do
Moncton.....	Wm. Arbing...	do ...	Struck by flat car.....	Shoulder injured slightly.	
Near Shediac....	John Thompson	do ...	Train broke apart, rear portion colliding with engine.	Hips injured.....	
St. Pierre.....	P. Bernier	do ...	Fell out of engine.	Fatal	do

INTERCOLONIAL

RETURN of Accidents and Casualties which have occurred in

Date.	Time of Night or Day.	Number of Train.	Description of Train.	Name of Conductor.	Name of Driver.	No. of Engine.
1885.						
Feb. 7...	8.40 a.m.	1	Express.....	D. Rutherford	I. H. Hunter.....	59
do 14...	9.00 a.m.	Special.	Snow train..	P. Bellemere.....	L. Langlois.....	16
do 14...	9.00 a.m.	do ..	do	do	do	16
do 15...	10.45 a.m.	do ..	Freight.....	W. Crocket.....	J. Gilfillan.....	91
do 16...	4.10 a.m.	do ..	do	Jas. McDonald.....	Jos. Probert.....	8
do 21...	7.35 p.m.	33	Express.....	Geo. Conturier.	John McDonald... ..	157
do 25...	7.00 a.m.	.....	Shunting engine .....	.....	I. J. Smith.....	26
do 26...	5.10 a.m.	Special.	.....	A. S. Piola.....	C. Walker.....	133
March 2...	11.50 a.m.	38	Freight.....	N. Merrill.....	J. Stratton	144
do 7...	10.15 a.m.	Special.	do	E. L. Watts	{ J. Stewart, jun..... E. Rushton.....	106 161
do 13...	7.30 p.m.	.....	Shunting engine	H. Garrett.....	Wm. Lovitt	93
do 13...	6.15 p.m.	.....	do ..	.....	J. McDermott.....	99
do 14...	8.50 a.m.	16	Freight	J. W. Miller	H. McAuley.....	9
do 14...	11.00 p.m.	.....	Shunting engine. ....	.....	Chas. McHugh.....	18
do 16...	1.00 a.m.	Special.	Freight.....	A. Bernier.....	D. McQuarry	90
do 19...	10.00 p.m.	.....	Shunting engine. ....	.....	P. Fogarty	27
do 22...	6.45 a.m.	Special.	Plough.....	C. B. Humphrey	{ Jno. Devereaux. Jno. Cameron	5 153
do 24...	8.00 p.m.	do ..	do .....	.....	A. Sharpe	140
do 27...	8.00 a.m.	.....	Shunting engine. ....	.....	R. James.....	48
do 27...	11.50 a.m.	39	Freight.....	Jas. Daley.....	J. Morton	29
do 28...	11.15 a.m.	50	do	L. Proulx.....	L. Boulé.....	117
do 28...	7.00 p.m.	42	Accommodation.	— Aubin.....	W. Bastain	154
do 29...	8.30 a.m.	Special.	Freight.....	A. Armstrong.....	John Gilker.....	163
April 2...	8.30 a.m.	.....	Shunting engine. ....	.....	P. Fogarty.....	101
do 6...	12.30 a.m.	34	Express	A. McLellan.....	B. Lutes.....	147

RAILWAY.

Canada, on the Line of the Intercolonial Railway, &c.—*Continued.*

Place of Accident.	Name of Persons Injured.	Whether Passenger or Employé.	Particulars of Accident.	Extent of Injury.	Verdict of Coroner's Jury.
Shubenacadie....	Miss McGuire...	Passenger	Fell off car steps.....	Slightly injured.	
Harlaka Junct'n	Louis Brulot...	Employé..	Fell off car.....	do ...	
do ...	Philias Gagné.	do ...	do	do ...	
East of Canaan.	Albert Hope....	do ...	Fell off box car.....	Fatal	Accidental.
Windsor Junct'n	J. E. Blair	do ...	Fell off train.....	Back injured.....	
Trois Pistoles...	P. Gosselin.....	do ...	While coupling.....	Fatal.....	No inquest held
Moncton.....	M. Wilcox.....	do ...	do	Hip jammed	
East Assemet-quaghan	{ C. Walker and Joseph Rioux }	do ...	Collision between two specials.	Fatal.....	Accidental.
Nash's Creek ...	McLean.....	Neither...	Struck by and carried along by snow plough.	Not injured	
} Dalhousie Junction.	C. Rushton.....	Employé ..	While coupling.....	Hand injured. ...	
Richmond... ..	Jno McEachern	do ...	do	do ...	
Moncton.....	Geo. Kidd.....	do ...	do	Hand crushed...	
Polly Bog.....	John Pollock...	Employé..	Fell off box car	Wrist sprained and hip injured.	
Moncton	Geo. Oliver.....	do ...	While coupling.....	Hand injured...	
Partague	B. Dubé.....	do ...	While protecting train..	Foot frozen.....	
Moncton.....	Chas. Smith ...	do ...	Struck and knocked down by cattle cars.	Ankle broken and back inj'd.	
} East Assemet-quaghan.	L. Levesque....	do ...	Plough and engine No. 5 left track and upset.	Fatal.....	do
St. John Station.	Wm. Kelly	do ...	Unloading baggage	Hand injured....	
St. John.....	Chas. James...	do ...	Slipped from foot board of engine.	Leg crushed.....	
Dalhousie Junc.	J. Carroll.....	do ...	While coupling	Hand injured....	
St. Charles Junc.	O. Fournier	do ...	Was struck by switch post and knocked under car.	Arm crushed.....	
Ste. Flavie.....	E. Dubé.....	do ...	While coupling	Hand injured....	
do	A. Michaud ...	do ...	do	do ...	
Moncton	S. Boyd	do ...	do	do ...	
Newcastle	John Milburn...	do ...	do	do ...	

INTERCOLONIAL

RETURN of Accidents and Casualties which have occurred in

Date.	Time of Day or Night.	Number of Train.	Description of Train.	Name of Conductor.	Name of Driver.	No. of Engine.
1885.						
March 7	10.15 a.m.	Special.	Freight.	C. B. Humphrey	T. Wilkins.....	.....
do 8...	8.30 a.m.	.....	Shunting engine. ....	.....	Thos. Scott.....	60
do 15...	5.40 a.m.	12	Express	Y. C. Campbell	J. Clark.....	149
do 17..	7.00 a.m.	52	Accommodation.	J. McLeod.....	T. Scott.....	37
do 17...	8.00 a.m.	.....	Shunting engine. ....	.....	— Mackie	14
do 17...	3.33 p.m.	Special.	Freight	M. Cummings	D. McQuarry	28
do 19...	12.30 a.m.	do ..	do	H. Drummond	N. McNeil.....	91
do 29...	11.00 a.m.	do ..	do	J. E. Evans	T. Wilkins.....	53
do 30...	7.35 p.m.	do ..	do	F. Morency	A. Doig.....	3
May 6...	1 10 p.m.	42	Accommodation.	H. Aubin.....	Jos. Scott.....	146
do 6...	1.35 a.m.	43	Freight	G. Maxwell.....	T. G. Scott.....	141
do 6...	.....	.....	.....	.....	.....	.....
do 18...	10.00 a.m.	Special.	Freight	R. W. Vye	John Dalton.....	91
do 18...	4.20 p.m.	20	Express	E. C. Davidson.....	J. McDowell.....	70
do 25...	8.00 a.m.	38	Freight	P. Merrill	J. Stratton.	144
do 28...	7.20 p.m.	.....	Shunting engine .....	.....	John Leonard.....	95
do 31...	10.30 a.m.	.....	do ..	.....	Geo. Sears.....	94
June 1...	3 40 p.m.	4	Accommodation	J. McFadyen.....	M. F. Jones.....	51
do 1...	.....	Special.	Freight.....	H. Gauvreau.....	J. Valcourt.	131
do 3...	9.00 p.m.	.....	Shunting engine .....	.....	Chas. McHugh	18
do 4...	4.00 a.m.	Special.	Freight	Jos. Paradis.....	J. Devereaux.	108
do 7...	5.30 a.m.	.....	Shunting engine .....	.....	M. O'Brien.	99
do 12...	9.30 a.m.	.....	do ..	.....	P. Fogarty.	101
do 13...	11.30 a.m.	.....	do ..	.....	Jas. McDermett.	99

RAILWAY.

Canada, on the line of the Intercolonial Railway, &c.—*Continued.*

Place of Accident.	Name of Persons Injured.	Whether Passenger or Employé.	Particulars of Accident.	Extent of Injury.	Verdict of Coroner's Jury.
Derby	Jos. Holland ...	do ...	While signalling to driver, fell.	Knee injured ...	
Campbellton ...	E S Vye	do ...	While coupling	Hand injured ...	
Sackville	— Talbot	Passenger	Stabbed himself.	Not seriously injured	
Dalhousie Junc.	A. Nickerson...	Employé..	While coupling	Hand injured ...	
Rivière du Loup.	— Pelletier.....	do ...	do	Chest squeezed.	
Beaver Brook ...	A. McPherson.	do ...	Struck by piece of torpedo.	Cut leg	
East Newcastle.	H. Drummond.	do ...	Ladder on box car gave way.	Arm broken and elbow dislocat'd	
Chatham Junc...	H. Atkinson ...	do ...	While coupling	Hand bruised ...	
St. Alexandre ...	D. Fournier	do ...	do	Side bruised	
Ste. Lucie.	H. Aubin.....	Employé..	While getting out of box car.	Sprained ankle. .	
Cedar Hall.....	C. Caron	do ...	Part of driving wheel broke, and came thro' cab.	Injured about body.	
Deep water terminus shed, Halifax.	Thos. Kelly. ...	do ...	Carrying chest of tea.....	Ran nail into hand.	
Newcastle.	— Tingley	do ...	While coupling.	Hand injured	
Valley.	E. O. Davidson	do ...	Slipped and fell	Broke ankle.....	
Dalhousie Junc.	D. Haines.	do ...	Fell off box car.	Back and ankle injured.	
Truro	John Leonard .	do ...	Gauge glass broke	Hand scalded....	
Campbellton. ...	Thos. Brown ...	do ...	While coupling.	Chest squeezed ..	
Boundary Creek.	— Wilson.....	do ...	Attempting to board train	Broke leg	
Assemetquaghan	A. Michaud. '...	do ...	Brake chain broke	Sprained wrist...	
Moncton	H. Melouson...	do ...	Caught foot in rail.....	Ankle sprained..	
Assemetquaghan	B. Dubé.	do ...	While coupling.	Hand injured....	
Moncton.....	M. Russell	do ...	Fell off car.	Two ribs broken.	
do	Geo. Oliver. ...	do ...	While coupling.....	Chest crushed...	
do	Geo. Seamons.	do ...	do	Arm crushed. ...	

INTERCOLONIAL

RETURN of Accidents and Casualties which have occurred in

Date.	Time of Day or Night.	Number of Train.	Description of Train.	Name of Conductor.	Name of Driver.	N
June 18...	.....	10	Express	Jas. Millican.. .....	.....
do 22...	9.00 p.m. ....	.....	Shunting engine .....	.....	Jas. Cole.	18
do 24...	1.45 p.m.	33	Express	J. Barry	A. Shickle.....	129
do 29...	8.30 a.m. ....	.....	.....	.....	.....
do 29...	2.25 a.m.	Special.	Freight	J. E. Evans	Fred. Moore	5

RAILWAY.

Canada, on the Line of the Intercolonial Railway, &c.—*Continued.*

Place of Accident.	Name of Person Injured.	Whether Passenger or Employé.	Particulars of Accident.	Extent of Injury.	Verdict of Coroner's Jury.
Salt Springs	A little child, daughter of Mrs. J. A. McDonald.	Passenger	Died on train.	Natural cause....	
Moncton.....	F. Gayton.....	Employé.	While coupling.	Hand injured.....	
Lévis	S. Brosseau... ..	Neither....	Caught between fence and train.	Arm and collar bone broken.	
Halifax.....	Robt. Gauld ...	Employé.	Piece of iron fell off truck	Toes crushed. ...	
Bathurst.....	Fred. Robins ...	do ..	While coupling.	Hand injured....	

EASTERN EXTENSION RAILWAY.

OFFICE OF THE CHIEF SUPERINTENDENT,
MONCTON, N.B., 4th November, 1885.

SIR,—I have the honor to submit the following report on the working of the Eastern Extension Railway for the fiscal year which ended 30th June, 1885.

I enclose the report of the Chief Engineer of the Intercolonial Railway on the permanent way and works, the report of the Mechanical Superintendent of the Intercolonial Railway on the rolling stock, and the following statements prepared by the Accountants and Auditor:—

No. 1. Capital Account.	
2. Revenue Account.	
3. Locomotive Power.	(Abstract No. 1.)
4. Car Expenses.	(" 2.)
5. Maintenance of Way and Works.	(" 3.)
6. Station Expenses.	(" 4.)
7. General Charges.	(" 5.)
8. General Balance.	

The length of railway operated was the same as last year—eighty miles.

The cost of the road and equipment on the 30th June, 1884, was \$1,284,311.97. No additions were made to Capital Account during the year.

The general offices of this railway are at New Glasgow, and it is worked by a staff stationed there, under the general direction of the chief officials of the Intercolonial Railway.

The expenditure for the year was..... \$78,273 65

The gross earnings were..... 73,050 01

Loss..... \$5,223 64

It is impossible to make a comparison with the previous year, as the railway only came into the possession of the Government of Canada on the 9th January, 1884.

The whole railway and rolling stock were maintained in good running order, and considerable improvements were made in both during the year.

I have the honor to be, Sir,

Your obedient servant,

D. POTTINGER,
Chief Superintendent.

COLLINGWOOD SCHREIBER, Esq.,
Chief Engineer and General Manager Government Railways,
Ottawa.

CHIEF ENGINEER'S OFFICE,
MONCTON, N.B., 3rd November, 1885.

SIR,—I have the honor to submit the following report on the maintenance of the Eastern Extension Railway for the year ending 30th June, 1885.

The length of this road is 80 miles.

SIDINGS.

A siding 950 feet long was erected to Matheson's foundry.

FENCINGS.

Six miles of barbed wire and Everett lath wire fencing [were erected in place of decayed board and pole fencing.

Extensive repairs were also made to the old fence.

SLEEPERS.

Thirty-nine thousand eight hundred and ninety-one sleepers were renewed.

CLEANING, CUTTINGS AND BALLASTING.

The cuttings and side ditches were thoroughly cleaned from one end of the road to the other. Thirty-four hundred yards of ballast were put in track in wet cuttings, and at the other points where needed.

BRIDGES AND CULVERTS.

A new trestle was erected under Pine Tree and West River pile bridge.

Three small 2 by 2 box culverts were provided in place of pole drains, which were found insufficient.

About 500 yards of rip-rap were deposited to protect embankment, where disturbed by the high freshets of last spring.

Sixty feet of crib work was built up at Brierley Brook, for the protection of the embankment.

BUILDING, &c.

A flag station was put up at Tracadie.

Necessary repairs have been made to a number of the stations and platforms. The track has been well maintained, and is in good running order.

I am, Sir,

Your obedient servant,

P. S. ARCHIBALD,

Chief Engineer.

D. POTTINGER, Esq.,

Chief Superintendent Intercolonial Railway,
Moncton, N.B.

INTERCOLONIAL RAILWAY.**MECHANICAL SUPERINTENDENT'S OFFICE,**

MONCTON, N.B., 4th November, 1885.

DEAR SIR,—I beg to submit the following statement concerning the rolling stock on the Eastern Extension Railway.

It consists of—

- 9 engines.
- 6 first-class cars.
- 4 second-class cars.
- 4 postal, baggage and express cars.
- 2 conductors' vans.
- 25 box cars.
- 5 cattle cars.
- 70 platform cars.
- 150 5 ton hopper coal cars.

Two of the engines and two passenger cars have had a thorough repair, at the shops of the Intercolonial Railway, and the others have been kept in running order at the shop at New Glasgow.

The remaining engines will soon require considerable repair; and the balance of the passenger and baggage stock will have to be repaired and painted during the coming year.

Owing to an improper arrangement of certain parts of the trucks, under the passenger cars, they were rendered very uncomfortable to ride in. This was remedied, and they now ride very easily.

The water service is in the same condition as last year, and, as I stated in my former report, an expenditure of about \$10,000 is needed to put it in an efficient condition.

I am, Sir,

Your obedient servant,

H. A. WHITNEY,

Mechanical Superintendent.

D. POTTINGER, Esq.,

Chief Superintendent Intercolonial Railway,
Moncton, N.B.

No. 1.—EASTERN EXTENSION RAILWAY.
CAPITAL ACCOUNT, Year ending 30th June, 1885.

Dr.

Cr.

1885. June 30	To cost of road and equipment	\$ cts.		1885. June 30	By Dominion of Canada	\$ cts.	
		\$	cts.			\$	cts.
		1,284,311	97			1,284,311	97
		1,284,311	97			1,284,311	97

NEW GLASGOW, N. S., 30th June, 1885.

G. G. BULLEY,
Accountant and Auditor.

No. 2.—EASTERN EXTENSION RAILWAY.
REVENUE ACCOUNT, Year ending 30th June, 1885.

DR.

CR.

Expenditure.	Amount.	Earnings.	Amount.
	\$ cts		\$ cts
Locomotive power (Abstract No. 1).....	18,611 87	Passenger traffic.....	37,658 89
Car expenses (do.....)	10,608 88	Freight traffic.....	26,522 75
Maintenance of way and works (Abstract No. 3).....	26,411 18	Mails and sundries.....	9,868 37
Station expenses (do 4).....	8,537 74		73,050 01
General charges (do 5).....	15,093 98	Balance.....	5,223 64
	<u>78,273 65</u>		<u>78,273 65</u>

G. G. BULLEY,
Accountant and Auditor.

NEW GLASGOW, N.S., 30th June, 1885.

No. 3.—EASTERN EXTENSION RAILWAY.

LOCOMOTIVE POWER—(Abstract No. 1).

	Year ending 30th June, 1885.
	\$ cts.
Mechanical Superintendent's salary, Clerk's, Office and travelling expenses.....	1,200 79
Wages, Drivers, Firemen and Cleaners.....	4,657 11
Fuel.....	4,437 75
Oil, Tallow. Waste and small Stores.....	1,506 10
Repairs to Engines, Tenders and Engine Tools.....	6,737 44
Water, including Pump and Tank repairs.....	16 16
Miscellaneous.....	66 52
	18,621 87

G. G. BULLEY,

Accountant and Auditor.

NEW GLASGOW, N.S., 30th June, 1885.

No. 4.—EASTERN EXTENSION RAILWAY.

CAR EXPENSES—(Abstract No. 2).

	Year ending 30th June, 1885.
	\$ cts.
Repairs to Passenger cars.....	1,534 00
do Postal, Express and Baggage cars.....	176 04
do Freight cars and Vans.....	2,146 78
Wages of Conductors, Train Baggage Master and Brakesmen.....	4,882 93
Oil and Waste for packing.....	432 29
Small Stores and Fuel.....	1,023 83
Miscellaneous.....	413 01
	10,608 88

G. G. BULLEY,

Accountant and Auditor.

NEW GLASGOW, N.S., 30th June, 1885.

No. 5.—EASTERN EXTENSION RAILWAY.
MAINTENANCE OF WAY AND WORKS—(Abstract No. 3).

	Year ending 30th June, 1885.
	\$ cts.
Wages repairing Roadway, Fences, Semaphores, including new Sidings laid in	13,511 62
Rails and Fastenings, including new Sidings laid in	937 09
Sleepers.....	5,097 53
Timber, Lumber, &c., for repairs to Bridges, Cattle-guards, Crossings, Snow-sheds, Fences, &c.....	3,944 18
Repairs to Wharves.....	78 05
do Buildings and Platforms, including extensions and additions.....	145 16
do Snow Ploughs, Flangers and Tools.....	324 87
Clearing ice and snow.....	1,249 15
Miscellaneous.....	123 53
	25,411 18

G. G. BULLEY,
Accountant and Auditor.

NEW GLASGOW, N.S., 30th June, 1885.

No. 6.—EASTERN EXTENSION RAILWAY.
STATION EXPENSES—(Abstract No. 4).

	Year ending 30th June, 1885.
	\$ cts.
Salaries and wages of Station Masters, Agents, Clerks, Telegraph Operators, Station Baggage Masters, Yard Masters, Switchmen, Watchmen and Laborers.....	6,902 81
Fuel, Oil, Light, Stationery, Tickets and other incidental expenses.....	1,321 72
Miscellaneous.....	313 19
	8,537 74

G. G. BULLEY,
Accountant and Auditor.

NEW GLASGOW, N.S., 30th June, 1885.

No. 7.—EASTERN EXTENSION RAILWAY.

GENERAL CHARGES—(Abstract No. 5).

	Year ending 30th June, 1885.
	\$ cts.
Superintendent, Train Despatchers' salaries, Clerks, Office and Travelling expenses	4,181 90
Accounting Department, salary of the Accountant and Auditor, Clerks, Office and Travel- ling expenses	1,894 55
Advertising	288 53
Damages to men, animals and goods	85 37
Telegraph expenses (not including pay to Operators).....	45 75
Miscellaneous, including Ferry service	8,597 88
	<hr/> 15,093 98

G. G. BULLEY,
Accountant and Auditor.

NEW GLASGOW, N.S., 30th June, 1885.

No. 8.—EASTERN EXTENSION RAILWAY.

Dr.

GENERAL BALANCE, Year ending 30th June, 1885.

Cr.

	\$	cts.	\$	cts.	Revenue account—	\$	cts.	\$	cts.
Working expenses—					Passenger traffic.....	37,658	89		
Balance 30th June, 1884.....	2,086	87			Freight traffic.....	25,522	75		
Locomotive power.....	18,621	87			Mails and sundries.....	9,868	37		
Car expenses.....	10,608	88						73,050	01
Maintenance of way and works.....	25,411	18			Windsor and Annapolis Railway.....				0 82
Station expenses.....	8,537	74			Intercolonial Railway.....			5,001	32
General expenses.....	15,093	98			New Brunswick Railway.....			155	89
					Maine Central Railway.....			388	63
Capital account.....			80,360	52	International Steamship Co.....			366	84
Cash.....			1,284,311	97	National Despatch Line.....			2	42
Stores Department.....			1,437	13	Midland Railway.....			1	55
Stations.....			6,243	90	Canadian Pacific Railway.....			5	00
Eastern Railway.....			81	48	Grand Trunk Railway.....			1	11
Boston and Maine Railway.....			84	48	Great Eastern Railway.....			6	28
T. Cooke & Sons.....			61	50	Bras d'Or Steamship Co.....			25	50
D. Harrington.....			7	58	P. Paint & Co.....			35	00
G. Morrison & Co.....			1	25	Bank of Montreal.....			1,765	95
E. Clay.....			25	00	Department of Railways and Canals.....			2,086	87
Rents.....			129	32	Dominion of Canada.....			1,292,288	87
Western Union Telegraph Co.....			30	33					
Intercolonial Express Co.....									
Departmental accounts—									
Militia.....	14	50							
Post Office.....	1,448	40							
			1,462	90					
								1,375,152	06

G. G BULLEY,
Accountant and Auditor.

NEW GLASGOW, N.S., 30th June, 1885.

EASTERN EXTENSION RAILWAY.

RETURN of Accidents and Casualties which have occurred on the Line of the Eastern Extension Railway, during the Year ended 30th June, 1885.

Date.	Time of Night or Day.	No. of Train.	Description of Train.	Name of Conductor.	Name of Driver.	No. of Engine.	Place of Accident.	Name of Person Injured.	Whether Passenger or Employé.	Particulars of Accident.	Extent of Injury	Verdict of Coroner's Jury.
1884. July 18...	8.40 p m	3	Accom.	S. McKay	H. Cummings.	...	Near Mulgrave	Wm. Levaungie.	Neither ...	Walking on track, was struck by train.	Fatal	Accident.
'Sept. 16...	6.00 p.m.	Special.	Ballast.	Jas. Holmes ...	R. Smith .....	...	Near Antigonish.	R McLeilan	do ...	Attempting to cross in front of train.	Slightly injured	
'Dec. 20...	10 30 a.m.	do ...	Plough.	M F. Punch...	John Dunbar .	...	Near Glenfalllock.	A. McInnis.	do ...	Attempting to cross in front of train.	Fatal	do

WINDSOR BRANCH RAILWAY.

OFFICE OF THE CHIEF SUPERINTENDENT,
MONCTON, N.B., 4th November, 1885.

SIR,—I have the honor to submit the following statements, showing the result of the working of the Windsor Branch Railway for the year which ended 30th June 1885.

- No. 1. Revenue Account.
2. Maintenance of Way and Works.
3. General Balance.
4. Statement of Earnings.

I also send you the report of the Chief Engineer on the condition of the permanent way and works.

This line, 32 miles in length, was operated during the year by the Windsor and Annapolis Railway Company, on the same terms as last year, the company being allowed to retain two-thirds of the gross earnings, the balance, one-third, being paid over to the Government, the latter maintaining the line.

The gross earnings for the year amounted to \$24,451 35

The expenditure for maintenance of way and works was 18,751 96

Net gain \$ 5,699 39

The gross earnings show a slight increase, when compared with last year follows:—

1884-85..... \$24,451 35

1883-84..... 23,018 93

Increase..... \$ 1,432 42

The permanent way and all the works belonging to this railway are maintained in good working order, and some improvements were made.

I have the honor to be, Sir,
Your obedient servant,

D. POTTINGER,
Chief Superintendent.

COLLINGWOOD SCHREIBER, Esq.,
Chief Engineer and General Manager Government Railways,
Ottawa.

No. 1.—WINDSOR BRANCH RAILWAY.

DR.

REVENUE ACCOUNT, Year ending 30th June, 1885.

CR.

Previous Year.	Expenditure.	Year ending 30th June, 1885.	Previous Year.	Receipts and Earnings.	Amount, Year ending 30th June, 1885.
\$ cts.		\$ cts.	\$ cts.		\$ cts.
22,140 86	Maintenance Way and Works (Abstract No. 1.)	18,751 96	8,126 22	Passenger traffic	7,869 73
			13,932 84	Freight traffic.....	15,621 75
			959 87	Mails.....	959 87
878 08	Balance	5,699 39			
23,018 93		24,451 35	23,018 93		24,451 35

R. B. BOGGS,
Acct, W. B. Ry.

MONCTON, N.B., 30th June, 1885.

No. 2.—WINDSOR BRANCH RAILWAY.
MAINTENANCE OF WAY AND WORKS—(Abstract No. 1).

Previous Year.	Particulars.	Amount.
\$ cts.		\$ cts.
5,217 62	Repairs to track.....	6,403 9
3,210 05	Rails and fastenings	472 2
6,844 22	Sleepers.....	3,196 2
276 16	Bridges.....	193 0
108 93	Signals.....	97 5
301 66	Culverts and cattle guards	187 4
389 78	Buildings and platforms.....	4,671 7
.....	Wharf at Windsor.....	556 8
13 80	Switch locks	6 9
3,803 48	Fencing	749 9
29 14	Hand cars and trollies.....	43 5
253 12	Tools and repairs	210 0
435 74	Snow ploughs and flangers	723 0
1,257 16	Accountant's Office and expenses.....	1,209 1
.....	Miscellaneous.....	31 0
22,140 86		18,751 1

R. B. BOGGS,
Acct., W. B. Ry.

MONCTON, N.B., 30th June, 1885.

No. 3.—WINDSOR BRANCH RAILWAY.

MONTHLY STATEMENT of Receipts—One-third Earnings.

Month.	Passengers	Freight.	Mails.	Totals.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
1884—July.....	895 67	1,199 19	80 76	2,175 62
August.....	1,080 77	889 06	80 76	2,050 59
September.....	1,049 94	1,528 19	80 75	2,658 88
October.....	718 94	1,930 83	80 76	2,730 53
November.....	630 92	1,859 38	80 75	2,571 05
December.....	593 51	1,478 33	80 76	2,152 60
1885—January.....	431 75	910 26	78 71	1,420 72
February.....	305 27	920 38	78 71	1,304 36
March.....	389 73	1,376 92	78 71	1,845 36
April.....	499 12	1,261 15	79 74	1,840 01
May.....	556 87	1,105 47	79 73	1,742 07
June.....	717 24	1,162 59	79 73	1,959 56
	7,869 73	15,621 75	959 87	24,451 35

R. B. BOGGS,

MONCTON, N.B., 30th June, 1885.

Acct., W. B. Ry.

No. 4.—WINDSOR BRANCH RAILWAY.

DR.

GENERAL BALANCE.

CR.

1885.	\$ cts.	1885.	\$ cts.
June 30 Windsor & Annapolis Railway	2,391 38	June 30 Intercolonial Railway.....	545 95
		Dominion Account.....	1,845 43
	2,391 38		2,391 38

R. B. BOGGS,

MONCTON, N.B., 30th June, 1885.

Acct., W. B. Ry.

INTERCOLONIAL RAILWAY.

CHIEF ENGINEER'S OFFICE,

MONCTON, N.B., 3rd November, 1885.

SIR,—I have the honor to submit the following report on the maintenance of the Windsor Branch for the year ending 30th June, 1885.

The length of this Branch is 32 miles.

SLEEPERS.

Thirteen thousand three hundred and seventy-six sleepers were renewed.

BALLASTING (NEAR WINDSOR.)

A ballast pit was opened up, a siding 1,264 feet long was laid into it, and 2,10 yards of ballast put out for repairs of track.

SIDINGS.

Sidings were put in at Hay's Mill, Grooves' Road, and at Mount Uniacke. The sidings and switches were rearranged in Windsor yard.

FENCING.

Two miles of barbed wire fencing were put up in place of old zig-zag pole fence. Seven pairs of farm gates were renewed. Extensive repairs were made to the old pole fencing.

BUILDINGS AND PLATFORMS.

A new combined passenger freight station and agent's dwelling was erected at Mount Uniacke, at a cost of \$2,000.

A tank house, with tub and fittings complete, was erected about a mile west of Mount Uniacke station.

A new hay shed was built at Windsor.

Repairs were made to stations at Beaver Bank, Ellershouse and Windsor.

A bonded warehouse was made in freight shed at Windsor.

New platforms were erected at Mount Uniacke and Windsor.

Necessary repairs were made to the platforms at Beaver Bank, Ellershouse, Newport and Windsor.

BRIDGES, CULVERTS, &c.

Carroll's wooden bridge was renewed and replaced with an iron span of 20 feet. The masonry of this bridge was also overhauled and thoroughly repaired.

Necessary repairs were made to the timber-work and masonry of Jordan and Sackville bridges.

New cattle guards were put in at Hibbard's Crossing and at Mount Uniacke.

The planking, chocks and fenders of the wharf at Windsor were renewed.

The track scales at Windsor, which were badly worn and rusted, were taken up and sent to Montreal, thoroughly repaired and replaced.

Not a wheel has been off the track on this branch during the year.

The track is in good order.

I am, Sir,

Your obedient servant,

P. S. ARCHIBALD,

Chief Engineer.

D. POTTINGER, Esq.,

Chief Superintendent Intercolonial Railway,
Moncton, N.B.

PRINCE EDWARD ISLAND RAILWAY.

SUPERINTENDENT'S OFFICE,

CHARLOTTETOWN, 14th September, 1885.

SIR,—I have the honor to submit the following report of the operation of the Prince Edward Island Railway for the year ending 30th June, 1885, and to transmit herewith the accounts for the same period, comprising:—

- | | |
|---|-------------------|
| No. 1. Capital Account. | |
| 2. Revenue Account. | |
| 3. Locomotive Power | (Abstract No. 1.) |
| 4. Car Expenses | (" " 2.) |
| 5. Maintenance of Way and Works | (" " 3.) |
| 6. Station Expenses | (" " 4.) |
| 7. General Charges | (" " 5.) |
| 8. Monthly Statement of Earnings. | |
| 9. Statement of General Stores Account. | |
| 10. General Balance. | |
| 11. Comparative Statement of Averages. | |

I also enclose the report, accompanied by statements, of the Mechanical Superintendent and Storekeeper.

CAPITAL ACCOUNT.

The total expenditure on Capital Account to 30th June, 1884, was..	\$3,654,356 00	
Less refunds on account of previous expenditure.....	1,487 53	
		\$3,652,868 47
Add to which the expenditure on Cape Traverse Branch.....		78,444 09
Making the total expenditure to 30th June, 1885..	\$3,731,312 56	

The rolling stock provided on Capital Account up to the 30th June, 1884, was:

- 20 locomotives.
- 16 first-class passenger cars.
- 14 second-class and baggage cars.
- 3 postal and smoking cars.
- 175 box and stock cars.
- 125 platform cars,
- 3 conductors' vans.
- 7 snow ploughs.
- 6 flangers.
- 1 pay car.

And during the year ended 30th June last this stock has been increased, in connection with the Cape Traverse Branch, by:—

- 1 locomotive.
- 1 first-class passenger car.
- 1 second-class and baggage car.
- 1 snow plough.
- 1 flanger.

REVENUE ACCOUNT.

Owing to the fact that the "Northern Light," about mid-winter, became blocked by ice in Georgetown harbour, until navigation was open, the railway lost the transportation of a large number of passengers and a very large quantity of freight which was stored at Pictou Landing, to be forwarded by the "Northern Light," but which was brought direct to Charlottetown and other points on the island by water.

The gross earnings for the year amounted to.....	\$158,588 06
Previous year.....	144,504 12
Increase.....	\$ 14,083 94

The earnings per mile of railway compare with the previous year as follows:—

1883-84.....	\$727 98
1884-85.....	784 44
An increase per mile of.....	\$ 56 46

The average length of road operated in 1885 was.....	Miles. 2021 $\frac{1}{2}$
Previous year.....	1984 $\frac{1}{2}$
And the total length of road operated at the 30th June, 1885, was.....	210

STATEMENT.

	Passengers Carried.	Earnings.
1883-84.....	118,988	\$62,926 26
1884-85.....	130,423	66,054 32
Increase.....	11,435	\$3,128 06

	Tons of Freight Carried.	Earnings.
1883-84.....	51,841	\$70,701 74
1884-85.....	57,346	74,213 84
Increase.....	5,505	\$ 3,512 10

The engine mileage, compared with last year, was:—

1883-84.....	291,760
1884-85.....	311,443
Increase.....	19,683

The trains mileage, compared with last year, was:—

1883-84.....	238,130
1884-85.....	249,878
Increase.....	11,748

The car mileage compared with last year was :—

1883-84	1,208,423
1884-85	1,233,476
Increase.....	<u>25,053</u>

The above increases in engine, train and car mileages were caused by train service on the Cape Traverse Branch.

EXPENDITURE.

The operating expenses, as compared with the previous year, are as follows :—

Ordinary.	Renewals, Rolling Stock, Rails and Fastenings.	Total.
1883-84.....\$216,856 67	\$19,571 46	\$237,428 13
4-85..... 180,553 54	30,653 47	211,207 01
Increase.....	\$11,082 01	.....
Decrease..... \$36,303 13	.....	\$25,221 12

Included in the above, expended on new work, are the following items :—

Increased freight accommodation at Charlottetown... ..	\$ 850 00
Apparatus for fire service at Charlottetown	550 30
New barbed wire fence built between Ellerslie and Brae Stations.....	205 00
otal.....	<u>\$1,605 30</u>

The increased freight accommodation at Charlottetown refers to a loading platform which was built at the west end of Charlottetown freight house. It gives good satisfaction to shippers and the railway, as freight can now be loaded on cars directly from teams, and *vice versa*. This platform is a substantially-built structure. It has a strong fence, with gates opening on to the street, to enable teams to pass in or out. These gates are closed up and locked at night.

The apparatus for fire service, in the event of a fire taking place in or about the shops, will, no doubt, be found of great benefit.

TRACK.

Six and one-half miles were re-laid with steel rails.

A new siding, 268 feet long, was put in at Richmond.

Two hundred and sixty feet were added to the siding at Freetown, and it was made a thorough siding. This change was necessary to enable trains to cross at this point.

New patent safety switches have been placed in Charlottetown and Summerside yards.

Twenty-one tons of steel fish-plates have been used to replace broken iron plates. Thirteen hundred iron rails, seven steel rail frogs, eleven sets of switch sleepers and twenty-one head blocks, with switch frames, were renewed.

SLEEPERS.

During the year 45,634 sleepers have been put in track. The sleepers on the whole line east of Alberton are now laid 2 feet from centre to centre.

BALLASTING.

Nine thousand three hundred and six cubic yards of ballast were distributed during the year, and the road was lifted where considered necessary.

Thirty miles of ditching was done.

Fifty car loads of clay were taken out of the cutting leading to the wharf at Souris.

BRIDGES, CATTLE GUARDS, &C.

Carrols, Morell, St. Peters, Naufrage and Five Houses bridges received repairs. All other bridges had the necessary attention.

Fifteen cattle guards were repaired and five were rebuilt.

Twelve cattle guard stringers were renewed.

Eleven new timber culverts to carry off surface water were put down.

The sewer leading from Summerside station house to the high water line at wharf was re-built.

BUILDINGS AND PLATFORMS.

All buildings in connection with Charlottetown station and shops were re-shingled where required, 10,000 shingles being used.

Large sky-lights were put in roof of paint shop. Gravel roof of round house was repaired. Five pits in round house were re-built with brick and cement, and five others repaired. A new foundation, with 3-inch plank floor, was put in machine shop. Two forges, with chimneys, were re-built in blacksmith shop. New floors were put down in one of the Mechanical Department offices, in the Cashier's office and the baggage room at Charlottetown.

All offices in connection with Charlottetown station and the Mechanical Department were whitewashed.

New sills were put under the south side of train shed, and the side sheathed up 3 feet high, and painted. Braces were cut away from one side of this building, and knees substituted, to allow the large passenger cars to pass through.

A loading platform, 90 feet long, 30 feet wide and 4 feet high, was built at the west end of Charlottetown freight house, and a fence, 7 feet high, having three gates, with openings of 13 feet, was placed thereon. A large quantity of hemlock timber, ballast and brush, was used in connection with this work.

The cattle pen at Charlottetown station was moved and rebuilt.

The hard-coal shed and washhouse were moved across Charlottetown yard, to make room for the loading platform. Both of these buildings were painted and color washed.

The roof of Lot 40 station, and one side of the roofs of North Wiltshire station and Summerside engine houses, were re-shingled. The roof of Morel station was partly re-shingled.

Two-thirds of Hunter River station platform was re-built.

Platforms have been re-built at North Wiltshire, Elliott's, New Annan, Travellers' Rest, Brae, Cardigan, St. Peter's, Douglas, Ashton and Harmony stations.

Extensive repairs were made to Summerside coal shed. Six new outside doors were put on freight shed on Summerside wharf, to prevent the spray from dashing in and injuring freight. Repairs were made to the shingling on walls of this building. The platform in front and rear of this freight house was re-laid.

The flag station at Brae was re-built.

The cattle pens at O'Leary and Port Hill were re-built.

A shed was built in connection with the Station Master's dwelling at Alberton.

North Wiltshire station building was painted and color washed outside, and several of the flag stations and buildings have been painted and color washed inside and out.

Georgetown, Souris, St. Peter's and Royalty Junction stations have been white-washed inside.

New floors were laid in Georgetown and Mount Stewart offices, and counters were put up. A counter was also placed in St. Peter's office.

Five hundred yards of clay were used in grading station ground at Bear River. All stations, &c., received slight general repairs.

WHARVES, &c.

Forty-five tons of timber and scantling, and fifty tons of stone ballast, were used to repair breastwork at Charlottetown wharf, damaged by storm on 5th November last. Fifteen fenders and one mooring post were renewed at Georgetown wharf, and 100 tons of stone ballast were used in its repair.

Extensive repairs were made to Summerside wharf, and fenders were placed around both sides, for a distance of 400 feet. A portion of this wharf was replanked, and the planking had general repairs.

Souris and St. Peter's wharves received repairs.

FENCING.

Four thousand two hundred and twenty-two lineal feet of new barbed wire fence was built between Ellerslie and Brae stations.

Twenty-seven thousand three hundred and seventy-two feet of fence was renewed with barbed wire.

Three thousand nine hundred and eighty-eight feet of pole fence, and 2,140 feet of board fence, have been renewed.

Forty miles of old fence, 228 gate posts, and 123 farmers' gates, were renewed.

One thousand one hundred and seventy-five feet of snow fence, blown down by gales during the summer, were rebuilt.

A large quantity of fence which had been burned was repaired.

SEMAPHORE SIGNALS, &c.

The semaphore, east of Summerside Station, was removed 600 feet further out, so as to better protect the siding.

All semaphores, switch frames, targets, telegraph signals, and most of the outside lamps, were painted.

WATER SUPPLY.

The "Haggas" water system is still in use, and continues to give good satisfaction.

ROLLING STOCK.

One new locomotive, built for the Cape Traverse Branch, has been added to the rolling stock, and charged to Capital.

Forty-three 10-ton box cars, eleven 10 ton platform cars, and one snow plough, have been rebuilt in the workshops of the railway, at Charlottetown, and are charged to working expenses.

The rolling stock has received the necessary repairs, and is now in good condition.

Forty box and twelve platform cars yet remain to be rebuilt.

STORES.

The purchases of stores during the year amounted to \$77,039.57

The value of stores on hand, 30th June, 1885, was :—

General stores.....	\$60,715 89
Coal.....	569 57
Rails and fastenings	20,948 96
Old material, serviceable.....	7,282 00
	<hr/>
	<u>\$89,516 42</u>

The stores have, for the most part, been purchased by tender and contracts, which follows out the practice of previous years.

Cape Traverse Branch.

This branch was open for traffic on the 22nd January, 1885. It forms a junction with the main line at County Line station and runs to Cape Traverse, a distance of about 13 miles. Ice boats, with passengers and mails, land at this point in winter.

The opening of the line proved a great accommodation to the public during the past winter, as mails leaving Cape Tormentine in the morning frequently arrived in Charlottetown, *via* this route, before noon of the same day.

I submit herewith a comparative statement, for 1883-84 and 1884-85, of the quantities of the various classes of freight carried, and of the earnings from this source.

I have much pleasure in stating that the officers and employés have performed their duties in a satisfactory and efficient manner.

I have the honor to be, Sir,

Your obedient servant,

JAMES COLEMAN,

Superintendent.

COLLINGWOOD SCHREIBER, Esq.,

Chief Engineer and General Manager Government Railways,
Ottawa.

No. 1.—PRINCE EDWARD ISLAND RAILWAY.

Dr.

CAPITAL ACCOUNT.

Cr.

1884. June 30...	To cost of Road and Equipment to date..... \$3,654,356 00	\$ cts.	1884. June 30...	By Dominion of Canada.....	\$ cts. 3,652,868 47
1885. June 30..	Less—Refunds on account of previous expenditure 1,487 53 To Expenditure, year ended 30th June, 1885— On Cape Traverse Branch.....	3,652,868 47 78,444 09 <u>3,731,312 56</u>	1885. June 30...	By Dominion of Canada	78,444 09 <u>3,731,312 56</u>

CHARLOTTETOWN, P.E.I., 30th June, 1885.

 W. T. HUGGAN,
Accountant and Auditor.

No. 2.—PRINCE EDWARD ISLAND RAILWAY.

REVENUE ACCOUNT for the Year ended 30th June, 1885.

Previous Year.	Expenditure.	Year ended 30th June, 1885.	Previous Year.	Receipts.	Year ended 30th June, 1885.
\$ cts.		\$ cts.	\$ cts.		\$ cts.
65,402 87	per Abstract No. 1.....	55,782 13	62,926 26	Passenger Traffic	66,054 32
36,718 15	Locomotive Power	45,068 63	70,701 74	Freight Traffic.....	74,213 84
81,954 16	Car Expenses	73,486 15	10,876 12	Mails and Sundries.....	18,319 90
24,452 69	Maintenance of Way and Works	25,285 15		Total Receipts.....	168,588 06
27,900 96	Station Expenses	11,584 95	144,504 12	Balance	52,618 95
	General Charges		91,924 01	Totals.....	211,207 01
236,428 13	Totals.....	211,207 01	236,428 13		

W. T. HUGGAN,

Accountant and Auditor.

CHARLOTTETOWN, P.E.I., 30th June, 1885.

No. 3.—PRINCE EDWARD ISLAND RAILWAY.

LOCOMOTIVE POWER—(Abstract No. 1).

Previous Year.	Details.	Year ended 30th June, 1885.
\$ cts.		\$ cts.
1,281 31	Mechanical Superintendent's salary, Clerks, Office and Travelling expenses.	1,272 61
13,404 71	Wages of Drivers, Firemen and Cleaners	14,148 15
16,402 69	Fuel	15,162 95
2,378 01	Oil, Tallow, Waste and small Stores	2,565 63
29,346 22	Repairs to Engines, Tenders and Engine Tools	20,178 93
340 07	Water, including Pump and Tank repairs	864 53
2,249 86	Miscellaneous	1,589 33
65,402 87	Totals	55,782 13

W. T. HUGGAN,

Accountant and Auditor.

CHARLOTTETOWN, P.E.I., 30th June, 1885.

No. 4.—PRINCE EDWARD ISLAND RAILWAY.

(CAR EXPENSES—Abstract No. 2).

Previous Year.	Details.	Year ended 30th June, 1885.
\$ cts.		\$ cts.
7,239 29	Repairs to Passenger cars	7,227 24
2,163 11	do Postal and Baggage cars	6 7 72
13,036 09	do Freight cars and Vans	22,057 93
11,057 06	Wages of Conductors, Train Baggage Masters and Brakesmen	11,532 16
669 17	Oil and Waste for packing	537 67
2,049 35	Small Stores and Fuel	2,428 39
504 08	Miscellaneous	667 52
36,718 15	Totals	45,068 63

W. T. HUGGAN,

Accountant and Auditor.

CHARLOTTETOWN, P.E.I., 30th June, 1885.

No 5.—PRINCE EDWARD ISLAND RAILWAY.
MAINTENANCE OF WAY AND WORKS—(Abstract No. 3).

Previous Year.	Details.	Year ended 30th June, 1885.
\$ cts.		\$ cts.
369 96	Engineer's salary, Clerks, Office and Travelling expenses.....	369 96
40,154 87	Wages in repairing Roadway, Fences and Semaphores.....	37,911 73
14,720 13	Rails, Chairs and Spikes.....	11,700 35
13,457 85	Sleepers.....	10,922 91
2,172 40	Timber and Lumber for repairs to Bridges, Cattle-guards, Fences, &c.....	4,417 81
1,415 80	Repairs to Wharves.....	953 12
4,846 52	do Buildings and Platforms.....	4,022 31
3,158 64	do Snow Ploughs, Flangers and Tools.....	2,078 63
1,657 99	Clearing ice and snow.....	1,109 33
81,954 16	Totals.....	73,486 15

W. T. HUGGAN,

Accountant and Auditor.

CHARLOTTETOWN, P.E.I., 30th June, 1885.

No. 6.—PRINCE EDWARD ISLAND RAILWAY.
STATION EXPENSES—(Abstract No. 4).

Previous Year.	Details.	Year ended 30th June, 1885.
\$ cts.		\$ cts.
18,022 45	Salaries and wages of Station Masters, Agents, Clerks, Telegraph Operators, Station Baggage-men, Yardmasters, Switchmen, Watchmen and Laborers.....	18,854 89
6,430 14	Fuel, Oil, Light, Stationery, Tickets and other incidental expenses.....	6,430 26
.....	Miscellaneous.....	.....
24,452 59	Totals.....	25,285 15

W. T. HUGGAN,

Accountant and Auditor.

CHARLOTTETOWN, P.E.I., 30th June, 1885.

No. 7.—PRINCE EDWARD ISLAND RAILWAY.

GENERAL CHARGES—(Abstract No. 5).

Previous Year.	Details.	Year ended 30th June, 1885.
\$ cts.		\$ cts
5,303 87	Superintendent's and Train Despatcher's salaries, Clerks, Office and travelling expenses.....	5,249 14
5,267 94	Accountant and Auditor's, Paymaster's and Cashier's salaries, Clerks, Office and travelling expenses.....	5,167 21
480 70	Advertising.....	477 07
16,262 52	Damages to men, animals and goods.....	239 51
342 46	Telegraph expenses (not including pay to Operators).....	326 59
242 87	Miscellaneous.....	125 43
27,900 36	Totals.....	11,584 65

W. T. HUGGAN,

Accountant and Auditor.

CHARLOTTETOWN, P.E.I., 30th June, 1885.

No. 8.—PRINCE EDWARD ISLAND RAILWAY.

MONTHLY STATEMENT OF RECEIPTS.

Months.	Passenger Traffic.	Freight Traffic.	Mails and Sundries.	Totals.
1884.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
July.....	9,135 21	7,261 46	703 85	17,100 52
August.....	7,500 07	6,021 46	709 18	14,230 71
September.....	5,615 23	6,794 82	705 00	13,115 05
October.....	7,913 17	7,895 03	726 00	16,534 20
November.....	5,780 96	10,204 93	7 0 00	16,695 89
December.....	5,279 19	6,025 71	1,651 00	12,955 90
1885.				
January.....	3,665 25	2,874 07	2,924 77	9,464 09
February.....	2,326 16	2,953 51	2,638 00	7,917 67
March.....	2,997 00	4,017 21	3,051 00	10,065 21
April.....	4,689 11	5,069 26	2,993 00	12,751 37
May.....	5,409 58	9,052 97	703 75	15,166 30
June.....	5,743 39	6,043 41	804 35	12,591 15
Totals.....	66,054 32	74,213 84	18,319 90	158,588 06

W. T. HUGGAN,

Accountant and Auditor.

CHARLOTTETOWN, P.E.I., 30th June, 1885.

No. 9.—PRINCE EDWARD ISLAND RAILWAY.

STATEMENT of General Stores Account, Year ended 30th June, 1885.

1884.	Dr.	\$ cts.	\$ cts.
June 30...	To Balance brought forward		86,076 25
1885.			
June 30...	To Purchases during the year.....	77,039 57	
	Charges from other Departments.....	22,687 16	
	Pay-rolls.....	2,930 40	
			102,657 13
1885.	Cr.		188,733 38
June 30...	By Issues during the year		99,216 96
	Balance. (Ordinary Stores	\$60,715 89	
	(Fuel.....	569 57	
	(Rails and Fastenings on hand.....	20,948 96	
	(Old Material, serviceable.....	7,282 00	
			89,516 42

W. T. HUGGAN,

Accountant and Auditor.

CHARLOTTETOWN, P.E.I., 30th June, 1885.

No. 10.—PRINCE EDWARD ISLAND RAILWAY.

DR.

GENERAL BALANCE.

CR.

	\$ cts.		\$ cts.
General Stores	89,516 42	Dominion Account.....	100,106 93
Cash.....	828 13	Accident Insurance.....	4,039 01
Stations	790 94		
Militia Department	104 90		
Anglo-American Telegraph Co.....	46 43		
Judge Weatherbee.....	30 00		
Sidney Grey.....	25 00		
Post Office Department.....	11,823 00		
Intercolonial Railway.....	981 12		
Total.....	104,145 94	Total.....	104,145 94

W. T. HUGGAN,

Accountant and Auditor.

CHARLOTTETOWN, P.E.I., 30th June, 1885.

No. 11.—PRINCE EDWARD ISLAND RAILWAY.

COMPARATIVE STATEMENT of Averages for Year ended 30th June, 1885.

Details.	1885.	1884.
*Mileage of railway open.....	210	198½
Engine mileage.....	311,443	291,760
Train do.....	249,878	238,130
Car do.....	1,233,476	1,208,423
Receipts per engine mile..... Cents	50·92	49·52
do mile of railway..... \$	784·44	727·98
Percentage of passenger earnings to gross receipts.....	41·65	43·55
do freight do do.....	46·80	48·92
do other do do.....	11·65	7·53
Expenses per engine mile :—		
Drivers', Firemen's and Cleaners' wages.....	4·54	4·59
Fuel.....	4·87	5·62
Oil, Tallow, Waste and small Stores.....	·82	·82
Repairs to engines.....	6·48	10·06
Water and tank repairs.....	·28	·12
Miscellaneous.....	·51	·77
Mechanical Superintendent's salary, Office and Travelling expenses.....	17·50	21·98
	·41	·44
Total..... Cents	17·91	22·42
Locomotive power per engine mile.....	17·91	22·42
Car expenses do.....	14·47	14·58
Maintenance of way and works do.....	24·59	28·08
Station expenses do.....	8·12	8·38
General charges do.....	3·72	9·57
Total per engine mile..... Cents	67·81	81·03
Locomotive power per train mile.....	22·32	27·46
Car expenses do.....	18·04	15·42
Maintenance of way and works do.....	29·41	34·41
Station expenses do.....	10·12	10·27
General charges do.....	4·63	11·72
Total per train mile..... Cents	84·52	99·28
Working expenses per mile of railway..... \$	1,044·72	1,191·07

* Average miles of railway for 1885—202½.

W. T. HUGGAN,
Accountant and Auditor.

CHARLOTTETOWN, P.E.I., 30th June, 1885.

PRINCE EDWARD ISLAND RAILWAY.

DESCRIPTIVE STATEMENT of Freight Earnings, for the Year ended 30th June, 1885.

Description of Freight.	Quantities.		Tons.		Amount.	
	1884.	1885.	1884.	1885.	1884.	1885.
					\$ cts.	\$ cts.
Oats..... Bush.	507,291	473,657	8,624	8,052	12,103 24	10,156 09
Wheat and other grain..... "	6,134	4,401	180	131	317 17	247 17
Potatoes and roots..... "	52,164	35,999	1,565	1,080	1,736 20	1,413 21
Flour..... Brls.	25,789	36,222	2,579	3,622	3,917 70	5,724 59
Mackerel..... "	14,490	10,212	2,174	1,532	2,289 14	1,670 69
Herring..... "	2,449	1,798	367	268	577 68	402 47
Cod and other fish.....			200	204	421 97	434 90
Canned fish and meats..... Cases.	26,068	35,862	912	1,255	1,623 01	2,109 13
Oysters..... Brls.	3,658	3,679	366	368	543 76	493 92
Fish barrels..... No.	5,139	4,426	235	268	249 40	207 90
Timber, hewn and unhewn... O. ft.	110,706	101,155	2,848	2,726	2,077 98	2,142 46
Lumber, sawn..... Sup. ft	3,305,281	4,206,143	4,283	5,539	3,889 23	4,368 41
Shingles..... M.	8,886	11,869	1,333	1,780	1,383 64	1,849 31
Cordwood and tanbark..... Cords.	2,808	3,059	5,329	5,844	2,945 50	2,935 38
Single timber, &c..... Cars.	64	292	669	2,837	606 25	2,746 95
Coal..... "	134	123	1,351	1,403	742 10	832 64
Lime..... Brls.	3,703	3,689	377	384	426 30	424 92
Limestone..... Cars.	84	162	935	1,760	283 86	567 09
Brick and building stone..... "	70	49	712	478	351 15	271 31
Mussel mud..... "	196	266	1,975	2,740	647 13	922 53
Salt.....			898	849	864 82	890 86
Live stock..... No.	4,957	5,007	1,179	1,201	2,440 91	2,418 68
Pressed hay.....			67		74 67	
Fresh beef.....			24	33	71 33	100 61
Pork in carcass.....			273	322	759 38	885 99
do barrels..... Brls.	795	1,960	162	294	165 38	438 40
Butter and cheese.....			43	56	136 31	170 04
Eggs..... Pkgs.	28,175	30,856	1,005	1,091	2,517 80	2,532 15
Farina starch..... Cars.	136	62	1,362	623	1,417 62	724 08
Merchandise.....			9,814	10,606	23,805 69	24,582 36
Wharfage, storage, &c.....					1,315 39	1,549 60
			51,841	57,346	70,701 74	74,213 84

STATEMENT OF PASSENGER TRAFFIC.

	1884.	1885.
Total number carried	118,988	130,423
Receipts	\$62,926 26	\$66,054 32
Receipts for each passenger, in cents	52.88	50.65

PRINCE EDWARD ISLAND RAILWAY.

MECHANICAL SUPERINTENDENT'S OFFICE,
CHARLOTTETOWN, 29th August, 1885.

SIR.—I beg to submit the following statements, showing the operations of the Mechanical Department of this railway for the fiscal year ending 30th June, 1885:—

- A. Monthly statement of cost of locomotive power.
- B. Statement of the performance and consumption of locomotives.
- C. Monthly statement of car mileage.
- D. Statement showing the number of locomotives, cars and snow ploughs.
- E. Comparative statement of the expenses of the Mechanical Department for the years 1883-84 and 1884-85.

The locomotives have been increased by one, which was purchased and charged to capital.

By reference to Statement D it will be seen that our first and second-class passenger cars, snow ploughs and flangers, have also been increased by one each. These have also been charged to capital.

During the year we have rebuilt forty-three 10-ton box cars and eleven 10-ton flat cars, to replace an equal number of the old 8-ton cars. These cars have been re-built at a cost of \$22,099.36, which sum is included in the working expenses. We have also rebuilt one snow plough.

Our stock of locomotives, cars and snow ploughs, provided on capital account, now consists of—

- 21 locomotives.
- 17 first-class passenger cars.
- 15 second-class passenger and baggage cars.
- 3 postal and smoking cars.
- 175 box cars.
- 125 platform cars.
- 3 conductors' vans.
- 1 pay car.
- 8 snow ploughs.
- 7 flangers.

I am pleased to be able to report that all our rolling stock is in good condition.

I have the honor to be, Sir,
Your obedient servant,

J. UNSWORTH,
Mechanical Superintendent and Storekeeper.

JAMES COLEMAN, Esq.,
Superintendent Prince Edward Island Railway,
Charlottetown.

**PRINCE EDWARD
MECHANICAL**

A.—STATEMENT of the Cost of Locomotive

Months.	Miles run by Engines, less Ballasting.	Cost of				
		Enginemen's Wages.	Fuel.	Oil, Tallow, Waste and Small Stores.	Repairs.	Water, including Tank and Pump Repairs.
		\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
1884—July.....	32,053	1,272 04	1,656 65	250 01	1,257 65	117 41
August.....	31,010	1,282 25	1,351 62	226 79	1,468 20	26 22
September.....	28,058	1,234 91	1,286 74	227 98	1,120 72	336 98
October.....	30,231	1,255 11	1,618 55	254 10	1,439 34	144 52
November.....	28,537	1,202 77	1,503 07	240 57	2,104 12	32 05
December.....	23,550	1,093 81	1,416 84	213 09	2,605 44	51 22
1885—January.....	21,186	1,204 27	1,179 43	194 96	2,202 47	25 87
February.....	20,652	1,178 97	1,259 98	198 96	1,918 60	87 70
March.....	23,315	1,325 23	1,463 02	231 75	2,013 74	14 64
April.....	20,848	1,112 49	1,061 10	171 61	1,871 94	10 25
May.....	22,306	1,021 79	860 62	177 91	131 36	3 67
June.....	29,697	964 51	505 33	177 90	2,045 35	14 00
Totals.....	311,443	14,148 15	15,162 95	2,565 63	20,178 93	864 53

ISLAND RAILWAY.

DEPARTMENT.

Power, for the Year ended 30th June, 1885.

		Average Cost per Mile run.						
Miscellaneous, including expenses of Office and Engine-houses.	Total.	Enginem.	Fuel	Oil, Tallow, &c.	Repairs.	Water.	Miscellaneous.	Total.
\$ cts.	\$ cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.
231 86	4,785 62	3·97	5·16	0·78	3·92	0·37	0·73	14·93
133 95	4,489 03	4·13	4·35	0·73	4·73	0·09	0·44	14·47
199 52	4,406 85	4·40	4·59	0·82	3·99	1·19	0·71	15·70
279 69	4,991 31	4·15	5·35	0·84	4·76	0·48	0·93	16·51
217 68	5,300 26	4·21	5·27	0·84	7·37	0·11	0·77	18·57
301 38	5,681 76	4·64	6·01	0·90	11·07	0·22	1·28	24·12
385 49	5,192 49	5·68	5·57	0·92	10·39	0·12	1·82	24·50
286 11	4,930 32	5·71	6·10	0·96	9·29	0·43	1·38	23·87
281 00	5,329 38	5·68	6·28	0·99	8·64	0·06	1·20	22·85
189 08	4,416 47	5·33	5·09	0·82	8·98	0·05	0·91	21·18
179 84	2,375 19	4·59	3·85	0·80	0·59	0·01	0·80	10·64
176 36	3,883 45	3·25	1·70	0·59	6·89	0·04	0·60	13·07
2,861 94	55,782 13	4·54	4·86	0·83	6·48	0·28	0·92	17·91

J. UNSWORTH,
Mechanical Superintendent and Engineer.

PRINCE EDWARD

MECHANICAL

B.—STATEMENT of the Performance and Consumption

Months.	Hours in Steam.	Train Mileage.				Miles run by Engines.			
		Passenger.	Freight and Mixed.	Ballasting.	Piloting.	With Train.	Light.	Shunting.	Total.
1884—July	4,295	11,531	13,960	3,000	44	28,535	250	6,268	35,053
August	3,938	11,504	13,824	970	17	26,315	171	6,192	32,678
September	3,858	10,634	13,178	2,643	40	26,495	201	5,297	31,993
October	4,169	11,145	12,824	2,987	.....	27,956	121	5,903	33,980
November	3,730	10,545	12,781	2,198	.....	25,524	153	5,590	31,267
December	2,999	4,096	14,080	.....	.....	18,176	.....	5,374	23,550
1885—January	3,000	2,253	13,907	.....	408	16,568	134	4,484	21,186
February	2,965	1,963	12,155	.....	2,406	16,524	52	4,076	20,652
March	3,521	2,452	13,497	.....	2,906	18,855	86	4,374	23,315
April	3,121	2,453	13,196	.....	232	15,881	184	4,783	20,848
May	3,039	2,646	14,043	274	154	17,117	116	5,370	22,603
June	3,327	10,642	13,362	.....	.....	24,004	74	5,619	29,697
Totals	41,962	81,864	161,807	12,072	6,207	261,950	1,542	63,330	326,822

ISLAND RAILWAY.

DEPARTMENT.

of Locomotives, for the Year ended 30th June, 1885.

Total Mileage.		Average of Cars per mile run with Train.	Average Mileage.		Consumption.				Consumption per 100 Miles run by Engines.			
Cars.	Snow Ploughs.		Miles to one hour in Steam	Of Cars to one of Engine.	Bushels of Coal	Pints of Oil.	Pounds of Tallow.	Pounds of Waste.	Bushels of Coal	Pints of Oil.	Pounds of Tallow.	Pounds of Waste.
161,865		5.68	8.16	4.61	15,447	1,500	1,107	644	44.06	4.27	3.15	1.83
138,750		5.28	8.30	4.24	12,060	1,355	1,013	497	36.90	4.14	3.10	1.52
146,850		5.55	8.29	4.59	12,584	1,503	1,051	470	39.33	4.70	3.28	1.46
154,042		5.51	8.15	4.53	15,219	1,449	1,085	540	44.78	4.26	3.19	1.50
124,245	185	4.86	8.38	3.97	13,559	1,227	970	466	43.36	3.93	3.10	1.49
92,015	2,803	5.06	7.85	3.90	10,900	934	732	425	46.28	3.96	3.10	1.80
75,655	2,215	4.68	7.06	3.57	9,191	932	686	380	43.38	4.39	3.23	1.79
63,746	6,963	4.51	6.96	3.08	9,536	972	709	355	46.17	4.70	3.43	1.71
80,913	6,918	5.07	6.62	3.47	9,254	1,084	937	425	39.69	4.64	4.01	1.
81,099	1,156	5.18	6.68	3.89	8,350	886	738	352	40.05	4.24	3.54	1.68
103,661	185	6.05	7.43	4.58	9,281	874	742	351	41.06	3.86	3.28	1.55
107,635		4.48	8.92	3.62	9,319	1,187	934	495	31.38	3.99	3.14	1.66
1,330,466	20,425	5.20	7.79	4.07	134,700	13,903	10,704	5,400	41.21	4.25	3.27	1.65

* Deduct piloting in making these averages.

J. UNSWORTH,
Mechanical Superintendent and Storekeeper.

PRINCE EDWARD ISLAND RAILWAY.

MECHANICAL DEPARTMENT.

C.—MONTHLY STATEMENT of Car Mileage, for Year ended 30th June, 1885.

Months.	First-class	Second-class and Baggage.	Postal and Smoking.	Box, Stock and Hay.	Platform.	Total.
1884—July	30,300	31,001	11,642	46,381	42,541	161,865
August	28,800	31,892	14,511	39,900	23,647	138,750
September	24,090	29,251	7,751	42,262	43,496	146,850
October.....	27,963	32,044	5,917	47,767	40,351	154,042
November	23,743	28,673	3,721	49,769	18,339	124,245
December	18,621	20,480	6,734	34,881	11,299	92,015
1885—January	16,336	15,662	7,015	22,800	13,842	75,655
February.....	14,346	14,176	5,146	16,346	13,732	63,746
March	15,511	15,531	5,464	21,772	22,635	80,913
April	16,110	16,707	7,891	28,206	12,185	81,099
May	17,209	18,475	6,045	44,559	17,373	103,661
June.....	25,339	26,304	7,087	36,503	12,392	107,625
Totals	258,368	280,196	88,924	431,146	271,832	1,330,466
Less—Ballasting	140	3,716	3,544	501	89,289	96,990
Balance	258,228	276,480	85,380	430,845	182,543	1,233,476

J. UNSWORTH,
Mechanical Superintendent and Storekeeper.

PRINCE EDWARD ISLAND RAILWAY.

MECHANICAL DEPARTMENT.

D.—STATEMENT showing the Number of Locomotives and the various classes of Cars and Snow Ploughs on hand, 30th June, 1884 and 1885.

Particulars.	Locomotives.	Classification of Cars.								Snow Ploughs.		Total.
		1st Class.	2nd Class and Baggage.	Postal and Smoking.	Box and Stock.	Platform.	Vans.	Pay Car.	Total.	Flangers.	Total.	
On hand 30th June, 1884, serviceable.....	20	16	14	3	134	119	3	1	290	7	6	13
do do condemned.....	.....	.....	.....	.....	41	6	.....	.....	47	.....	.....	.....
Total Stock, 30th June, 1884.....	20	16	14	3	175	125	3	1	337	7	6	13
Purchased and charged to Capital.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Built at Charlottetown Railway Works and charged to Capital.....	.....	1	1	.....	.....	.....	.....	.....	2	1	1	2
Total Stock, 30th June, 1885.....	21	17	15	3	175	125	3	1	339	8	7	15
Condemned on hand 1st July, 1884.....	.....	.....	.....	.....	41	6	.....	.....	47	.....	.....	.....
do during the year.....	.....	.....	.....	.....	42	17	.....	.....	59	1	.....	1
Less rebuilt.....	.....	.....	.....	.....	83	23	.....	.....	106	1	.....	1
.....	.....	.....	.....	.....	43	11	.....	.....	54	1	.....	1
.....	.....	.....	.....	.....	40	12	.....	.....	52	.....	.....	.....
Add serviceable and repairing.....	21	17	15	3	135	113	3	1	287	8	7	15
Total on record.....	21	17	15	3	175	125	3	1	339	8	7	15

J. UNSWORTH,
Mechanical Superintendent and Storekeeper.

PRINCE EDWARD ISLAND RAILWAY.

MECHANICAL DEPARTMENT.

E.—COMPARATIVE STATEMENT of the Expenses of the Mechanical Department, for the Year ended 30th June, 1885.

	1884.	1885.
The miles run by trains were	238,130	249,878
do engines were	291,760	311,443
do cars were.....	1,208,423	1,233,476
do snow-ploughs.....	22,990	20,425
	\$ cts.	\$ cts.
The cost of locomotive power was	65,402 87	55,782 13
do repairs to cars was.....	22,438 49	29,902 89
do labor, oil and waste, for packing, was	669 17	537 67
do repairs to passenger cars was.....	7,239 29	7,227 24
do do postal and smoking cars	2,163 11	617 72
do do freight cars and vans was	13,036 09	22,057 93
The cost of locomotive power per 100 miles run by trains was.....	27 46	22 32
do do do engines was.....	22 41	17 91
do do do cars was.....	5 41	4 52
The cost of repairs to cars per 100 miles run by trains was.....	9 42	11 60
do do do engines was.....	7 69	9 60
do do do cars was.....	1 85	2 42
The cost of labor, oil and waste for packing per 100 miles run by trains was...	0 28	0 21
do do do engines was	0 09	0 17
do do do cars was....	5 47	0 04
Repairs to passenger cars per 100 miles run by trains were.....	3 04	2 89
do postal and smoking cars were.....	0 90	0 24
do freight cars and vans were.....	5 47	8 82

J. UNSWORTH,
Mechanical Superintendent and Storekeeper.

RETURN of Accidents and Casualties which have occurred on the Prince Edward Island Railway, during the Year ended 30th June, 1885.

Date.	Time of Day.	No. of Train.	Description of Train.	Name of Conductor.	Name of Driver.	No. of Engine.	Place of Accident.	Names of Persons Injured.	Whether Passenger or Employé.	Particulars of Accident.	Extent of Injury.	Verdict of Coroner's Jury.
1884.												
Aug. 14	6.10 a.m.	6	Mixed	J. Thomson ...	J. Hughes	11	Summerside	James Daly	Employé.	Fell from top of car.	Sprained shoulder	
Sept. 8	6.00 p.m.	6	do	do	W. Watson	11	Nod Siding	W. Watson	do	Collision between train and flat car.	Badly injured.	
do	8.00 p.m.	5	do	do	do	11	do	H. Craswell	do	do	do	
Oct. 11	11 a.m.	13	Shunting	G. W. Hibbert	O. Moore	16	Georgetown	Frank Doucette.	do	Fell from front of engine	Leg broken; died from gangrene.	
1885.												
May 5	6.20 a.m.	8	Mixed	I. R. Scott	A. J. McLaine.	13	Near Souris	W. D. Oantwell	do	Fell between tender of engine and flat cars.	Leg broken, & shoulder dislocated	

JAMES COLEMAN,
Superintendent.

APPENDIX No. 6.

No. 1.

DEPARTMENT OF RAILWAYS AND CANALS,
SUPERINTENDING ENGINEER'S OFFICE,
MONTREAL, 27th November, 1885.

SIR,—I have the honor to submit my report on the various works under my charge for the fiscal year 1884-5, ended on 30th June last, as called for by your letter No 66812.

These works are the Lachine and Beauharnois Canals, on the River St. Lawrence; the Chambly Canal and St. Ours Lock and Dam, on the Richelieu River.

They have been maintained in an efficient state, without accident or interruption to the traffic.

Statements are annexed showing the amounts collected for fines, damages, &c together with monthly returns of the highest and lowest water registered at the upper and lower entrance of each canal, and on each mitre sill of St. Ours Lock.

LACHINE CANAL.

All the works were maintained in good order, and no interruption to the trade occurred during the navigable season.

This canal was closed by ice on the 30th November, 1884, and opened for traffic again on 4th May, 1885. The water was drawn off on the 23rd April, but owing to very sudden rise of the River St. Lawrence, caused by an ice jam above the Victor Bridge, which flooded Point St. Charles, the town of St. Gabriel and adjoining land the canal had to be refilled on the 25th, with a view of protecting the River St. Pierre culvert. Cofferdams were also raised around the Wellington Basin and portion of the towing path between Wellington street Bridge and Lock No. 3, prevent the flood water from flowing into the canal. The flood fell rapidly, after having risen to within 9 inches of the top of the coping of Wellington Basin, and admitted of the water being again drawn off from the two upper reaches on the 27th, when the necessary repairs below the water line were effected.

The principal item of work done during the year, and chargeable to repairs, was the renewal of the sills, the lower half of the posts and a large portion of the flooring of the two St. Gabriel sheds, for which a special appropriation was granted. The work was done during the winter months.

Owing to the low water in Lake St. Louis, and the great thickness of ice in the canal, the mills and factories which are supplied with power from the canal, were obliged to work from the 16th of February to the 14th of April, one-half of them at night and the remainder by day, so as not to draw down the summit level, and lowering the ice, displace the side walls. The ice measured three feet in thickness and the water on the upper sill of the guard lock at Lachine measured only 8 feet 6 inches at the lowest, and 10 feet 11 inches at the highest, during that time.

The new lock and entrance at Lachine were opened to the trade on the first of June last, which completed the opening of all the weir locks and enlarged canal throughout.

Ordinary repairs were made to the locks, weirs, bridges, buildings, &c., where required, and the whole kept in perfect order.

The towing paths were trimmed up and all drains and ditches cleaned. The roads and approaches to flour sheds, wharves and bridges were also repaired and kept in good condition.

Some dredging, chargeable to construction, was done between the main channel of the canal and Cantin's Basin, above St. Gabriel Lock, to bring it to the depth of 3 feet.

I would again call attention to the want of booms in the new lumber basin on section No. 1, at Lachine, and also to the urgent necessity for a proper system of lighting, the new locks and basins at the lower end of the canal.

CONTRACT WORK.

Bridges.

Two compound bridges were built by Mr. John McDougall during the winter. They replace the old wooden bridges at Côte St. Paul and Brewsters or Napoleon Road.

Macadamized Road—From Lachine to Côte St. Paul Road.

The contractors for this road, and the stone fence between it and the adjoining farms, have made fair progress. The fencing was finished in the fall of last year and the road will be completed by the close of the season.

St. Gabriel Basins Nos. 3 and 4.

Work on these basins was continued until stopped by the frost in December last. Operations were resumed early in the spring, and at the close of the fiscal year the state of the work was such as to guarantee an early completion of the unfinished work, consisting chiefly of wharves and roads.

Works of Enlargement.

At the date of last report the whole of these works were completed, and the contractors settled with, except on Section No. 11. On this section drilling and dredging were completed on the submarine work, 19th July, 1884; and from that date until September 27th a force was employed clearing up the bottom with divers and derrick. During this time also walls upon 30' cribwork were trimmed, and filling between walls completed and levelled up.

On September 27th the bottom of submarine work was thoroughly tested by gauges sweeping the whole width of the channel, at a level of three inches above grade.

BEAUHARNOIS CANAL.

The canal was closed on the 1st December, 1884, and opened to navigation on the 3rd May, 1885. No accident occurred, and consequently no interruption to the navigation during the fiscal year.

LOCKS AND LOCK GATES.

A pair of gates were built and placed in the upper end of Lock No. 9. The old gates were taken to pieces, and the construction of another pair for Lock No. 10 has been commenced. Sundry small repairs have also been made to the gates of locks Nos. 6, 9, 10 and 12.

Two pairs of gates were also built for the River Yamaska Lock, which gates will soon be placed in position.

The wooden suspension blocks of the lower gates of Locks Nos. 6, 7, 8, 9, 10, 11, 12 and 13, also the foot bridges at Locks Nos. 6, 7 and 8 were puttied and received two coats of paint.

Three fender posts were renewed at different locks, and several others repaired.

BRIDGES.

Two swing bridges were built, one of which has been placed at Lock No. 9, and the other will shortly be placed at Lock No. 13. These bridges have been made one foot wider than they were before, so as to enable the farmers to pass more easily with their reaping machines.

Considerable repairs were made to the bridges of Locks Nos. 7, 8 and 10.

The end piers and posts, as well as the ballast boxes of these bridges were renewed. Many of the weir bridges have been partly renewed or repaired; and many of the small bridges over ditches and discharges have been rebuilt and others repaired.

BANKS, DAMS, DYKES.

The Dykes at Hungry Bay have been repaired, and a considerable portion of these dykes have been raised.

The dam at "Ile aux Chats" is at present occupied by and under the care of the Canada Atlantic Railway Company, and they have laid their railway track on it.

A wharf has been built in front of the dam at "Grande Ile" along its whole length. This wharf has been well finished, filled with stones and covered with gravel. It is a great benefit to the navigation.

The lower pier on the south at the St. Timothy Bridge, and also the upper one on the north side have been rebuilt above the water line. All other wharves have been kept in good order.

At many points the canal banks were raised and the side walls repaired. All culvert wells, side ditches and discharges were cleaned last summer, and in the spring the snow and ice were removed.

According to custom the weeds were mowed on both sides of the canal at the proper time.

One hundred and ten new mooring posts were placed and many others taken up and reset.

BUILDINGS, FENCES, &c.

The Lockmen's house of Lock No. 11 has been rebuilt. Considerable repairs were made to the Lockmaster's house of Lock No. 6. All the other dwelling houses and their outbuildings have been kept in repair.

The ground adjoining the Superintendent's house was levelled, fenced and planted with trees.

Fences were repaired at the houses of the Collector and of the Lockmen at Lock No. 8 and 12, and at the Government workshop.

A small building $13\frac{1}{2}$ by 18 feet was erected for the Lockmen at Lock No. 9.

Two new scows were built and the others repaired.

DRAINAGE.

In addition to the ordinary cleaning of ditches previously mentioned, the ditch on the south side of the canal below Valleyfield was enlarged and deepened four feet in width, for a length of 3,500 feet.

LAKE ST. FRANCIS.

On the north side between Coteau Landing and St. Zotique, the shore had been washed away to such an extent as to endanger the public road. To prevent further encroachment of the lake and to save the road from destruction a dry stone revetment wall, on a bed of fascines, has been built at the most exposed points, for a total length of 3,494 feet.

This work was suspended on the 24th October, 1884, as the appropriation was exhausted. The wall suffered no damage from ice or high water, and has answered the intended purpose in every respect.

This wall should be continued for a length of 8,450 feet on parts of the shore which are still suffering damage from the same cause.

CHAMBLY CANAL.

This canal was closed by ice on the 30th November, 1884, and re-opened on the 14th May, 1885. No accident or interruption of any kind occurred.

The work done during the fiscal year is divided under two heads, viz.: "Ordinary Repairs" and "Improvements chargeable to Income."

The ordinary repairs were principally as follows:—

LOCKS.

Lock No. 1.

During the month of July portions of the upper wing-walls of this lock were taken down and rebuilt, and two new foot bridges were placed on the lower gates.

Lock No. 2.

One new sluice gate and frame, and two new foot bridges were placed in position.

Lock No. 3.

One new sluice gate and frame were built and the lower gates were furnished with new foot bridges.

Lock No. 4.

One pair of new gates were placed in the upper recesses and new foot bridges were made for the lower gates.

Lock No. 5.

A new balance beam and two foot bridges were provided for the upper gates.

Lock No. 6.

The piers at the lower entrance were partly rebuilt and new fenders placed.

Lock No. 7.

A trench was cut behind the wall and filled with puddle to prevent leakage. One new sluice gate and a pair of foot bridges were placed at the lower gates.

Lock No. 9.

The top bars of the lock gates were renewed and two new sluice gates were built and placed.

The walls of all the locks were pointed and grouted with Portland cement during the month of April.

BRIDGES AND BY-WASHES.

The old stone pier of Bridge No. 1 was taken down and rebuilt with square timber, and new flooring was placed where required on the other bridges.

Swing bridge No. 3 was replaced by a new one. Six towing path bridges on St. Thérèse Island were rebuilt.

By-washes Nos. 1 and 2 were repaired, and temporary repairs were made at Fryer's By-wash, it being intended to rebuild it next spring.

BANKS AND DITCHES.

During the month of April, the sidewalls between Locks Nos. 1 and 7 were repaired and the bottom was cleared of all loose stones.

Three culverts and six miles of side ditches were cleaned.

One hundred and fifty snubbing posts were made and placed on the banks where required.

BUILDINGS AND FENCES.

Necessary repairs were made to the dwelling houses of the Lockmasters and Bridge Keepers.

The fences along the line of the canal were repaired and rebuilt at different places.

WHARVES.

About sixty feet of the wharf above Lock No. 7 was replanked and new fenders placed. The wharf below Lock No. 9 at lower entrance had part of the planking repaired and renewed.

SCOWS.

Four scows were repaired and caulked, and two of them were painted.

WORKS OF IMPROVEMENT—(CHARGEABLE TO INCOME.)

Steam Dredge.

The steam dredge which had been working below St. Thérèse Island was sent to St. Ours Lock, on the 6th July, 1884, and returned to the Chambly Canal on the 5th September, where it was employed until the close of navigation in deepening at different points from By-wash No. 3 (Fryer's) down to a little below Lock No. 6. The material excavated was used for raising and widening the banks, and where no required was placed in spoil banks for future use.

In the spring the dredging fleet was put in thorough repair, and at the opening of navigation the dredge proceeded to St. John's where she continued to work at different places between Langelier's Bridge and James' Bridge. The material excavated was partly placed on the wharves and piers.

This dredge is under orders to proceed to the Beauharnois Canal after the first of July.

LOCKS.

During the winter and spring the upper wing walls, recess walls and chamber walls, on both sides of Lock No. 4 were taken down and rebuilt; the lower tiers being built of timber with concrete backing and the upper portion of ashlar stone and cement mortar.

The wall on the east side of Lock No. 5 was taken down and rebuilt in the same manner.

RICHELIEU RIVER.

A thorough survey with soundings is being made of the Richelieu River from below St. John's to Rouse's Point.

In connection with this survey permanent iron bench marks have been placed on Government property at various points along the river between the Province line and Orel.

I enclose herewith a detailed report by Mr. L. G. Papineau on works of improvement at St. Ours Lock and in connection with the hydrographic survey of the Micheliu from Rouse's Point to St. John's, P.Q.

ST. OURS LOCK AND DAM.

The navigation closed at this lock on 26th November, 1884, and opened again on 23rd April, 1885. The high water prevented the use of the locks from the 25th April to 1st of May, during which time vessels passed over the dam. There was no other interruption.

Six new piers were built, two above the lock on the island side and four below the lock—two on each side of the channel.

One of the lower gates of the lock received new chains, and the other chains were examined and repaired by the diver.

The dry wall below the lock was taken down and rebuilt. The old piers at each end of the lock were repaired, and one of the new piers above the lock, which had been displaced by the ice, was put back in position.

A landing place was made at the upper pier on the island, and a road about 100 feet long, with mooring posts, was made, to facilitate the handling of heavy tows coming from below.

The ice was cut away from the lock gates and from the piers, and the gates were loaded to prevent their being lifted by high water in the spring.

The old lock gates were taken to pieces for rebuilding. A small store house was rebuilt for the safe keeping of cement and other materials.

The booms were removed in the fall and replaced in the spring.

The dam was repaired and made level on top. Three scow loads of gravel were placed on the upper side to prevent leakage. A large scow was built for the service of the dam, and a small one for use either at the dam or the piers.

Usual repairs were made at the Superintendent's house, outbuildings, fences, &c.

I have the honor to be, Sir,
Your obedient servant,

E. H. PARENT,
Superintending Engineer.

J. P. BRADLEY, Esq.,
Secretary Department Railways and Canals,
Ottawa.

No. 2.

ST. OURS LOCK & DAM.

LACOLLE, 7th November, 1885.

SIR,—I have the honor to transmit my Report on the different works under my control during the fiscal year 1884-85.

ST. OURS.

The works at this place consisted in certain improvements to approaches to the lock. As these operations were only begun in June, 1884, but carried on and completed during the fiscal year 1884-85, they will be here described as belonging to that year.

These works were a continuation of those made in 1883-84, viz., building attached piers to support booms leading the vessels to the lock and deepening the

channel between these piers and the old landing piers on the island side above and below the level. In 1883-84 we had built five piers above and five below as well as booms to fill the space between them.

Lower Entrance.

In 1884-85 the line of piers below the lock was extended by adding two new ones, and two booms 125 feet in length, thus reaching a total distance of 750 feet from the lock.

Besides this, on the island side we lengthened the old landing pier by building two new piers and two booms, located so as to reach in a direct way the deep channel which lies towards the west shore from this point downwards.

The last of these piers forms a new pier head, and is higher than the others, in order to be above water as soon as navigation opens. It may be used to carry the red light showing this entrance.

In view of this and also for the convenience of boatmen, it is provided with steps from low water level to its top.

The two upper sides being exposed to the current are inclined at an angle of 45 degrees, and form an ice breaker as shown on the plan accompanying this report.

The space comprised between the two lines of piers was dredged to a uniform depth of 8 feet, and the channel widened to 220 feet, opposite the new pier head.

Dredge No. 1 was employed at this work from the middle of June to the 16th of August, 1884, and from that date until it left for Chambly it was employed at the upper entrance.

Upper Entrance.

The old landing pier at this entrance was in a similar manner lengthened 250 feet, by building two piers and two booms, thus allowing more space for vessel while waiting after passing the lock.

The channel was deepened as far as the line of these new piers.

We have thus, in all, built in 1884-85 at St. Ours Lock six new piers, of which one is 25 by 15 and the others 20 by 12; also, six booms 3 feet wide and of a total length of 700 feet, and the dredge has deepened an area of about 10,700 square yards.

In order to avoid carrying the piers to too great a depth, they were built on the bottom, without dredging previously, and sheet piles were driven along the side facing the channel.

By following this course a noticeable saving was effected, and, as there is but little current, it seems safe enough against sliding towards the channel.

These sheet piles were driven with a pile driver, which had to be rebuilt completely, as nothing but the hammer remained of the original one.

These works complete the lower entrance, and answer well to the present need of navigation. The upper entrance might be further improved by lengthening the row of piers on the shore side by 300 or 400 feet, and adding one pier towards the upper extremity of the island.

The works at St. Ours were completed about the 12th of September, 1884.

SURVEY.

From St. Ours the staff went to St. John's, and then to Pointe-à-la-Mule, to begin a hydrographic survey of the upper part of River Richelieu. During the autumn of 1884 we surveyed the distance between the lighthouses at Pointe-à-la-Mule and Sturgeon Point, and more particularly the flats of Pointe-à-la-Mule, the crossing at St. Valentin opposite South River, and the channel on the west side of Isle-aux-Noix.

The maps of this part of the river were sent to the Department, and help form an idea of the improvements or alterations that might be made in the channel at these different points.

The outside work of the survey was continued until the 20th of December, 1884. During winter of 1885 the maps of these different surveys were made, and also plans for a proposed tunnel under the Lachine Canal to facilitate traffic between the two parts of Wellington street.

In the month of July the survey of the Richelieu River was resumed, and is still continued to this date.

I have the honor to be, Sir,

Your most obedient servant,

L. G. PAPINEAU.

E. H. PARENT, Esq.,
Superintending Engineer,
Montreal.

LACHINE CANAL.

STATEMENT of Fines and Damages collected during the Fiscal Year ended 30th June, 1885.

Date.	Name of Vessel.	Name of Owner.	Fines.	Damages.	Totals.
1884.			\$ cts.	\$ cts.	\$ cts.
July 4...	Steamer South Eastern.....	Longueuil Navigation Co....	.....	4 50	4 50
Sept. 8...	B. J. Bright	Lower	4 00	0 63	4 63
Nov. 26...	B. Melinda	Lussier	10 00	25 00	35 00
		Totals.....	14 00	30 13	44 13

M. CONWAY,
Superintendent.

LACHINE CANAL OFFICE,
MONTREAL, July, 1885.

LACHINE CANAL.

STATEMENT of Amounts collected for Bank Dues and Wintering Vessels, during the Fiscal Year ended 30th June, 1885.

Date.	Items.	Number.	Rate.	Amounts.
			\$ cts.	\$ cts.
884-85....	Firewood.....	.....	.....	1,055 96
	Wintering vessels.....	.....	.....	136 58
	Total.....	.....	.....	1,192 54

JOHN O'NEILL,
Collector.

CANAL OFFICE,
MONTREAL, July, 1885.

LACHINE CANAL.

STATEMENT of Basin, Firewood and Bank Dues collected during the Fiscal Year ended 30th June, 1885.

Date.	Items.	Amounts.
		\$ cts.
1884-85....	Basin dues	1,052 96
	Firewood dues	74 40
	Bank dues	82 00
	Total.....	1,209 36

J. B. DESCHAMPS,
Pro Collector.

CANAL OFFICE,
LACHINE, July, 1885.

LACHINE CANAL.

STATEMENT showing the Depth of River Water on the Mitre Sills of Lock No. 1 at lower entrance, and Lock No. 5 at upper entrance, during the Fiscal Year ended 30th June, 1885. (From Lockmaster's Returns.)

Months.	Lock No. 1, Lower Sill.		Lock No. 5, Upper Sill.	
	Highest.	Lowest.	Highest.	Lowest.
1884,	ft. in.	ft. in.	ft. in.	ft. in.
July	19 9	18 9	12 6	11 10
August.....	19 4	18 1	12 4	11 5
September	18 1	17 5	11 6	11 0
October	17 11	17 5	11 5	11 0
November	18 9	17 4	11 7	10 8
December	* 34 2	17 5	12 3	10 10
1885.				
January	† 35 3	29 1	14 2	11 4
February	29 11	27 0	13 2	10 4
March.....	28 1	25 0	10 4	9 0
April	‡ 38 6	26 2	15 5	8 11
May.....	34 1	22 10	15 7	13 11
June	23 0	20 10	14 5	13 2

* 30th December, 1884.

† 7th January, 1885.

‡ 26th April, 1885.

BEAUHARNOIS CANAL.

STATEMENT showing the Depth of River Water on the Mitre Sills of Lock No. 6 at lower entrance, and Lock No. 14 at upper entrance, during the Fiscal Year ended 30th June, 1885. (From Lockmaster's Returns.)

Months.	Lock No. 6, Lower Sill.		Lock No. 14, Upper Sill.	
	Highest.	Lowest.	Highest.	Lowest.
1884.	ft. in.	ft. in.	ft. in.	ft. in.
July.....	12 6	12 0	13 0	12 6
August.....	12 5	11 10	12 8	12 3
September.....	11 9	10 9	12 8	12 3
October.....	10 10	10 7	12 4	11 10
November.....	11 2	10 9	12 4	11 9
December.....	12 8	10 9	12 10	11 7
1885.				
January.....	15 10	12 9	12 11	11 11
February.....	22 0	16 6	12 11	11 11
March.....	22 8	16 6	11 0	9 0
April.....	17 6	15 9	13 2	9 6
May.....	16 0	14 5	12 9	12 3
June.....	14 0	13 3	13 0	12 3

CHAMBLY CANAL.

STATEMENT showing the Depth of River Water on the Mitre Sills of Lock No. 9 at lower entrance, and Lock No. 1 at upper entrance, during the Fiscal Year ended 30th June, 1885. (From Lockmaster's Returns.)

Months.	Lock No. 9, Lower Sill.		Lock No. 1, Upper Sill.	
	Highest.	Lowest.	Highest.	Lowest.
1884.	ft. in.	ft. in.	ft. in.	ft. in.
July.....	11 11	9 11	9 0	7 8
August.....	10 0	8 9	8 1	7 2
September.....	8 11	8 0	7 8	6 8
October.....	8 5	7 7	7 4	6 8
November.....	10 3	8 2	7 6	7 0
December.....	11 2	9 1	8 6	7 3
1885.				
January.....	14 8	12 1	9 1	8 7
February.....	12 10	11 5	9 1	8 7
March.....	13 7	12 1	8 8	8 3
April.....	21 0	13 8	11 9	8 4
May.....	19 6	14 1	11 7	10 2
June.....	14 0	11 4	10 0	8 5

ST. OURS LOCK.

STATEMENT showing the Depth of River Water on the Mitre Sills of St. Ours Lock during the Fiscal Year ended 30th June, 1885. (From Lockmaster's Returns.)

Months.	Lower Sill.		Upper Sill.	
	Highest.	Lowest.	Highest.	Lowest.
1884.	ft. in.	ft. in.	ft. in.	ft. in.
July	10 7	9 8	10 5	9 3
August.....	10 1½	8 5½	9 5	8 6
September.....	8 11	7 9	8 9	8 0
October.....	8 11	7 11	8 10	7 9
November.....	10 5	8 1	8 9	8 2
December	12 4	8 6	10 4	8 7
1885.				
January	14 4	10 10	11 11	8 8
February.....	13 6	11 10	9 10	9 2
March.....	12 9	10 2	9 6	8 11
April	23 7½	10 8	19 6½	9 2
May.....	21 11	15 0	17 7½	12 0
June.....	15 14	12 2	12 1	9 11

No. 3.

OTTAWA RIVER CANALS.

REPORT FOR THE FISCAL YEAR ENDING 30TH JUNE 1885.

OTTAWA, 2nd September, 1885.

SIR,—I have the honor herewith to transmit my Annual Report upon the various works under my charge, taking first those coming under the head of "Construction" and second what have been required for the purposes of "Maintenance."

I have the honor to be, Sir,

Your obedient servant,

D. STARK,

Superintending Engineer, O.R.C.

A. P. BRADLEY, Esq.,

Secretary Department Railways and Canals.

CONSTRUCTION.

STE. ANNE.

At the beginning of the present year the contract for the construction of the lock and basin here, let Messrs. Baskerville, O'Connor and Cassidy, contractors, was finished, and the blasting and dredging of the new channel to the upper entrance

the hands of the Messrs. E. E. Gilbert & Sons had advanced to a distance, from its eastern extremity, of 700 feet up the river.

The dredge used by this firm began work on the 22nd July and closed on the 4th November, 1884.

Recommencing on the 15th June they have pushed on the work satisfactorily. The many improvements made during the intervening winter, both in the machinery and plant, have rendered this season's progress considerably more rapid than last.

Upon reaching a point suitable for the purpose, a cut in a northerly direction was made through a narrow shoal into another channel connecting with the main river navigation. By the channel so opened vessels were given access to the locks without interruption to the progress of the work of deepening and dredging.

This cut will, however, by acting as an alternative one in the event of a rush of traffic, or a block of any kind, prove itself a permanently useful adjunct to the navigation, especially in view of its close proximity to the lock.

During the year a pair of spare lock gates were built and placed ready for use in case of being required.

CARILLON CANAL.

Dam and Slide.

The work done here during the year has been confined to the extension of the booms and piers on the southern side of the approach to the guard lock, to raising and adding to the number of the piers forming the entrance to the slide at Pointe Fortune on the opposite side of the river and to repairs on the dam, which, though still in progress, are rapidly nearing completion.

Besides the refilling in of the break which occurred in this structure in 1883, its launching and strengthening in the other channels of the river north and south of this, has become a visible necessity, the dam in both showing itself perceptibly undermined. In the north channel it has been found to have sunk at least 18 inches below the level originally given it. The great disadvantage under which this dam has labored has been the too narrow width of apron on the lower side, which, by causing the over-fall to overleap it, has caused a disruption of the river bed close to it, placing the dam, as it were, on the "edge of a precipice," and the refilling of the space made by such disruption, with strong cribwork, will form both an extension of the apron and a support to the dam. This work is now in progress, and when completed, will meet all the requirements necessary to render the structure one which will be found undoubtedly permanent and reliable.

A few days more will see the north channel completed, when attention to the south also will close all the important work to be done.

The space between the slide and the south shore of the Ottawa may probably demand something, but the water there is too shallow to call for work of any extent.

I would remark that the sound condition in which the ice was started last spring layed a considerable amount of havoc among the piers and booms forming the entrance to both the slide and the canal.

The sudden and early rise of the river created by unwonted freshets, lifted the ice and carried it off in an unusual state of solidity, and with unusual velocity, hence the consequences to all structures with which it came into collision were irresistible, and every pier it touched was cut down to the water's edge.

Those in the canal entrance were replaced as soon as the water fell low enough to admit of working on them, but on the slide side of the river the damage was such as to have rendered its use this season impracticable.

GRENVILLE CANAL.

Green's Point Entrance.

The works here are now approaching completion. The locks were pointed early in the spring and so rendered permanently ready for traffic, the grounds about them

being properly graded and the necessary fencing erected. The tow paths also on the reaches between and above the locks have been graded and levelled. On the north side of the canal along the Government boundary fence a catch drain has been provided for their protection, rendered necessary by the great rush of water, from the high grounds to the northward which spring annually sends down upon them, and which have heretofore been known to sweep many yards of earth and debris into the canal.

The retaining walls along the reach, the lower entrance and along the upper lock are satisfactorily completed, and snubbing posts have been planted at intervals of 100 feet between each throughout the entire length of the enlargement.

At the lower end of the north retaining wall of the lower entrance, a protection pier 30 feet square has been built which now ends the work here; and opposite this pier on the south side, and abutting on the retaining wall; also a line of crib wharfing for the accommodation of tugs waiting for tows, &c., is being built along the edge of ten feet water and round the point formed by the canal and the river.

Upper Entrance.

This entrance, let to the late James Goodwin, Esq., was completed in September, 1884, the last work done being the removal by dredging of debris, which had been left in the canal bottom, and stood above the level of the mitre sill of the guard lock. No other work in connection with it has been required.

CULBUTE CANAL.

The only work executed here was the completion of the excavation of a shoal above the locks, for which the sum of \$2,000 was originally appropriated.

D. STARK,

Superintendent Engineer, O. R. C.

MAINTENANCE.

STE. ANNE'S CANAL.

Navigation closed here on the 24th November, 1884, and reopened on the 5th of May, 1885.

No interruption of any sort has occurred to it throughout the year.

The booms between the piers forming the channel across the river to Isle Perreault had to be repaired, in consequence of injury received by them on the going out of the ice last spring. 1,000 feet of new boom have been provided and laid along the north wall of the basin for the protection of the masonry, this wall having been hitherto, pending the construction of a special wharf for the purpose, used as a landing place.

Ordinary repairs to lock gates, buildings, &c., have been made with some necessary renewals, also;— the whole wharfing.

CARILLON AND GRENVILLE CANALS.

These canals were closed by ice on the 26th of November, 1884, and reopened on the 7th May, 1885. There has been no interruption from any cause to the traffic through them during the year. The piers and booms in connection with the Carillon Canal required a considerable amount of renewal to make good the damage done by the ice last spring on the southerly side of the upper entrance.

The locks on the Carillon Canal called for no repairs, save a small amount of pointing to the walls and painting of the gates and their machinery.

Prior to the opening of navigation an outlet was made in the guide pier to the upper lock, for the purpose of giving vent to the debris from the river, which, in the shape of slabs, bark and drift wood of all description, completely, at times, blocked the entrance and materially interfered with the proper working of the lock gates.

The gap so made has well answered the purpose sought, and the lock is now freed from such a drawback.

The usual amount of attention has been bestowed upon the roads, fences, &c., under the control of the Department.

The public road along the old canal had again, as last year, to be diverted through its adjoining properties during the season of high water. It is the intention this year to permanently change this portion of the public highway so as to place it for the future beyond the reach of river high water.

CHÂTEAU BLONDEAU.

No repairs have been made here this year, but the walls of the lock had to be capped with timber to admit of its being used during high water, when some of the tug boats find it impossible to tow up the current.

Masters of vessels complain of the expense they incur by being compelled to tow up this current, when they are under the necessity of doing so at this place in high water, and I would refer to former reports, submitting alternative schemes for meeting the difficulty.

GRENVILLE CANAL.

Repairs to the five locks in connection with this canal have been slight. The old oak suspension blocks at two of them were removed and replaced by iron straps countersunk into the masonry. Their suspension gearing was also overhauled, and new anchor bolts put in prior to the opening of navigation.

The gates and their machinery were painted and the walls pointed, new friction rollers being also placed under the gates.

The bridges on this canal, with the single exception of the swing at Grenville, are in good order, but the last mentioned will soon require renewal.

The ordinary repairs to the banks, and removal of the debris from both them and the boulder retaining walls along the reaches, have been, as usual, attended to. A very considerable outlay is required on these accounts every year, owing to the unfinished and unprotected condition in which the walls and banks have been left; but it seems useless beginning anything in the shape of repairs until a wholesale renewal is undertaken, which, when it is so, will, no doubt, embrace the much-needed widening in various portions of the canal, to give it the calibre of the improved navigation now otherwise existing between Grenville and Montreal.

CULBUTE CANAL.

Navigation closed here on the 27th November, 1884, and re-opened on the 18th April, 1885.

Some slight repairs to the lock gates have been made.

Twenty-one vessels, aggregating 1,000 tons burden passed through the canal during the season.

The steamers of the Upper Ottawa Boom and Pier Company made use of the upper lock, during the months of September and October, for purposes of repair.

D. STARK,

Superintending Engineer, O. R. C.

No. 4.

CORNWALL CANAL.

CORNWALL, 24th August, 1885.

SIR,—I have the honor to submit the following Annual Report on the works under my charge for the fiscal year ended 30th June, 1885.

The Cornwall Canal was maintained in an efficient state until the 8th December, when it was closed by ice, and opened for navigation on the 8th of May, and continued in good working order up to the 1st of July.

The works executed during the past season come under the head of ordinary repairs, except the building of pontoon by G. R. Miller, repairing one pair of lower and one pair of upper gates, and re-planking lower recess of Lock No. 18, general repairs to all supply weirs and abutment of the Cornwall Bridge, raising slope walls and embankment, cleaning culverts, side drains and ditches.

I have the honor to be, Sir,

Your obedient servant,

D. A. MACDONELL,

Superintendent.

A. P. BRADLEY, Esq.,

Secretary Department Railways and Canals.

CORNWALL CANAL.

STATEMENT showing the Depth of River Water on the Mitre Sills of Lock No. 15, at lower entrance, and Lock No. 21, at upper entrance, during the Fiscal Year ended 30th June, 1885.

Months.	Lock No. 15, Lower Sill.		Lock No. 21, Upper Sill.	
	Highest.	Lowest.	Highest.	Lowest.
	Ft. in.	Ft. in.	Ft. in.	Ft. in.
1884.				
July	11 8	11 5	12 0	11 4
August	11 7	11 2	11 7	11 2
September	11 11	10 10	11 4	10 0
October	11 10	10 3	11 1	10 0
November	10 6	10 1	11 2	9 8
December	17 6	10 1	10 8	9 6
1885.				
January	24 4	12 0	10 11	9 4
February	22 0	17 0	12 2	9 0
March	21 10	18 2	10 8	8 7
April	21 2	11 4	10 7	8 5
May	11 3	11 1	11 0	10 0
June	11 4	10 11	11 9	10 0

No. 5.

WILLIAMSBURGH CANALS.

MORRISBURG, 8th August, 1885.

SIR,—I have the honor to submit my report on the working and condition of the Williamsburgh Canals, under my charge, for the fiscal year ending 30th June, 1885.

These canals, embracing the Farran's Point, Rapide du Plat, Point Iroquois Junction and Gallops Canals, were closed for the season of 1884 on the 7th December, and re-opened for traffic on the 4th May, 1885. They were maintained in good repair, and no interruption to navigation occurred during the season.

FARRAN'S POINT CANAL.

A new block for pivot and swinging gate was placed on the coping and other repairs made to gates. New sheaves placed in chain-holes and crabs repaired. The pier and ice-breaker at the foot of the canal were repaired, and timber has been got out for the repairs to piers at the head and foot of this canal to be undertaken during the current season. The banks are in good repair. The lock houses were re-shingled and repaired, and a fence built on grounds attached to Lockmaster's house.

RAPIDE DU PLAT CANAL.

One of the gates at Lock No. 23 was taken down and new valves put in. Repairs were made to gates at Locks Nos. 23 and 24. Some new sheaves were placed in chain holes. The pier or wharf at the foot of this canal was repaired and general repairs done to the banks. This canal requires dredging in some places.

POINT IROQUOIS JUNCTION AND GALLOPS CANAL.

General repairs were done to the gates at Lock No. 25. New valves, bedplates and rollers were put in gates at Lock No. 26. New knees and binder put in gate at Lock No. 27. The repairs to the pier at the head of Gallops Canal were completed, and the wharf at the foot of Point Iroquois Canal extended and rebuilt. The ditch on the south side of Point Iroquois Canal was opened. The cellars of the lock houses were stoned and drains made from them. The banks of these canals and the booms in the Iroquois Canals have been kept in good repair.

The swing bridges over Locks 25 and 26 were repaired, pivot stones raised, pivots adjusted and tracks levelled.

The buoy boat was taken out and a thorough repair given it. The buoys between Johnston's and Dickinson's Landing were replaced and maintained in their proper positions.

The water in the St. Lawrence continuing high furnished a good depth of water in these canals.

I annex a statement showing the extreme depth of water on the sills of the several Locks at the entrances and outlets of these canals during the year.

I have the honor to be, Sir,
Your obedient servant,

A. G. MACDONELL,
Superintendent Williamsburgh Canals.

A. P. BRADLEY, Esq.,
Secretary Department of Railways and Canals.

WILLIAMSBURGH CANALS.

STATEMENT showing extreme depth of Water on the Sills of the several Locks during the year ending 30th June, 1885.

FARRAN'S POINT CANAL.

Months.	Lock No. 22, Lower Sill.		Months.	Lock No. 22, Lower Sill.	
	Highest.	Lowest.		Highest.	Lowest.
1884.	Ft. in.	Ft. in.	1885.	Ft. in.	Ft. in.
July	11 6	10 8	January	9 10	8 10
August.....	11 1	10 0	February	12 0	9 10
September.....	10 9	10 0	March	9 11	8 9
October	10 5	9 4	April	10 0	8 6
November	10 0	9 0	May.....	10 7	9 11
December	9 10	9 0	June	10 10	10 0

RAPIDE DU PLAT CANAL.

Months.	Lock No. 23, Lower Sill. Foot of Canal.		Lock No. 24, Upper Sill. Head of Canal.	
	Highest.	Lowest.	Highest.	Lowest.
1884.	Ft. in.	Ft. in.	Ft. in.	Ft. in.
July.....	11 5	10 11	12 3	10 11
August.....	11 3	10 3	11 9	10 9
September	10 10	9 9	12 0	10 6
October	10 5	9 0	10 6	9 3
November	10 2	8 5	9 9	8 9
December	10 0	8 3	9 9	8 0
1885.				
January	10 6	8 3	9 10	7 0
February	10 11	9 2	7 9	6 9
March	9 6	7 5	7 10	7 0
April	10 2	6 6	10 0	7 0
May.....	10 7	9 11	10 6	9 10
June	11 2	10 1	12 0	01 0

POINT IROQUOIS JUNCTION AND GALLOPS CANAL.

Months.	Point Iroquois. Lock No. 25, Lower Sill. Foot of Canal.		Gallops. Lock No. 27, Upper Sill. Head of Canal.	
	Highest.	Lowest.	Highest.	Lowest.
1884.	Ft. in.	Ft. in.	Ft. in.	Ft. in.
July	15 3	14 0	12 6	11 2
August	14 4	13 4	11 8	11 1
September	13 10	12 4	11 9	10 7
October	13 0	11 2	11 3	10 0
November	12 6	11 6	11 7	9 9
December	13 4	11 2	12 0	9 3
1885.				
January	13 0	9 6	11 2	8 4
February	12 0	10 0	8 9	8 0
March	11 0	7 4	9 2	7 9
April	12 10	8 0	10 8	8 3
May	13 1	12 5	11 1	10 6
June	14 10	12 10	11 9	10 2

No. 6.

WELLAND CANALS.

SUPERINTENDENT'S OFFICE,

St. Catharines, 24th September, 1885.

SIR,—I have the honor of herewith submitting my Report on the condition and working of the three canals under my charge, viz., the Old, the New, and the Feeder, for the year ending 30th June, 1885.

The canals have been operated satisfactorily throughout the year, and without serious accident, except in the case of the Schooner "Westside" bound up, when she ran into the superstructure of the swing bridge at Humberstone before the bridge had been fully opened, displacing the bridge, but fortunately not sufficiently to cause it to drop into the canal. I had the bridge jacked until in line with rest pier, thus preventing obstruction to navigation and admitting of the necessary repairs being proceeded with to completion. I put on a temporary ferry for foot passengers until all was made right again.

Since my last report I have placed a vessel measuring gauge at foot of Lock No 1, New Canal, and we are at last enabled to check the draft of all vessels before they enter the canal, at either end, which has had an excellent effect in preventing overloading.

The canals were closed on 4th December, 1884, and opened 5th May, 1885.

NEW WELLAND CANAL—DETAILS OF WORKS OF REPAIRS AND MAINTENANCE.

DIVISION No. 1—FROM PORT DALHOUSIE HARBOR TO FOOT OF LOCK No. 13.*Gate Yard and Shop, Port Dalhousie.*

One large lathe made for turning snubbing posts and capstans. Made eight fence gates and stone boats, eighty-two snubbing posts turned out and iron capped, made 390 oak wedges, and 405 oak boxes for water wheel shafts. Sundry repairs to Collector's office, Harbor and Lockmaster's houses and premises, and fenced around the harbor.

Gate-lifter or pontoon hauled out on to ways and considerably strengthened, also floating pile driver. Strengthened and made new horse power. Large tank made and sunk in ground for engine boiler supply, and fire protection. Made ten new large boxes for tools, oil, coal, &c., for lockmen. Made and erected 9 bridge signs and sign posts.

Built and completed one first-class strong crane scow for lifting lock gates and fixing heavy repairs, 50 feet keel, 23 feet beam, and $7\frac{1}{2}$ feet hold. One old stone scow hauled out on to skids, and put in first-class order and converted into floating pile driver. Several lock gates hauled out on to skids and received extensive repairs. Made two very large skeleton reels for winding heavy falls on after use to dry and prevent rot.

Two tramway cars made to run heavy castings and logs into shop. Built large double W. C. in yard for use of employes and sailors. Enclosed yard with board fence 221 feet long, 8 feet high.

Old lifting scow "Red Rover" hauled out, rebuilt and converted into ferry scow for Air Line Ferry.

Old pile driver hauled out and cut through centre lengthwise, and made into two floats for working around locks, weirs, scows, &c., &c. Built two hand dredges complete for cleaning locks, mud pockets, &c. Made two ladders and two small derricks for hoisting stuff from bottom of locks. Rebuilt tool scow, as good as new, and repaired thirty wheelbarrows.

Lock No. 1, Bridge No. 1, and Level.

Foot gates taken out. Steps raised with boiler plates. Right gate taken out, brought to yard and drawn out on to skids to repair valve and placed them in position again.

Built and put in place vessel measuring gauge to ascertain correct draft.

Drove 172 oak piles to form cradles to receive spare lock-gates, cut off same to level and bolted walings and caps for same complete. New chain well sheaves put in east side of lock. Extensive repairs to floor of long wash weir bridge near Neelon's Mills. Bridge painted two coats. Lock and machinery thoroughly overhauled and put in good working order. Chamber and mud pockets cleaned out by hand dredge and large quantities of mud and stone taken out that were left in by contractors. Additional new extra strong safety cables put on head gates to prevent gates being carried out by accident.

Lock No. 2, and Level.

One set of new gearing put on waste weir for hoisting the valves.

Some snubbing posts braced with extra heavy braces to admit of the larger class of vessels snubbing on them when entering the lock.

Cleaned out mud and rubbish from lower lock gates.

All the lock machinery thoroughly overhauled and put in good working order and removed when required.

Water wheels fitted in cases to make them run true.

Locking gear for holding lock gates back when opened, taken off and repaired and placed in position again.

Lock chamber and mud pockets cleaned out by hand dredge, and large quantities of mud and stones taken out that were left in by contractors.

Put new walings on head gates.

Lock No. 3, Bridge No. 2, and Level.

Bridge painted two coats.

Locking gear of bridge taken off. Stone work built up to receive catch and all placed in position again. One set of new gearing, for hoisting the valves, put on waste weir, twelve set of gearing put in order with new shafts, couplings, wheels, wheel cases and thirty-four oak wood boxes, and wood screws put on shafts. New steel cables put on in place of worn out copper cables. Turntable and carriage frame of bridge overhauled and put in good working order.

Lock No. 4, and Level.

Foot gates taken out. Steps raised with boiler plates and gates rehung at place.

One set of new gearing, for hoisting the valves, put on waste weir. Snubbing posts braced with extra heavy braces. Five hundred feet ditching made with an average depth of 3 feet to drain pond.

Lock No. 5, and Level.

One set of new gearing, for hoisting the valves, put on waste weir. Snubbing posts braced with extra heavy braces. Cables taken off, oiled, and put on again. Put on ten new oak boxes for shafts. Additional new extra strong safety cables put on head gates to prevent them being carried out by accident. New steel cables put on in place of worn out copper cables. Four hundred and twenty-six feet of ditch, cut at foot of embankment and filled with stone, and built off—take culvert under roadway.

Bridge No. 3, (Lake Street).

Five hundred feet of ditching made on towpath side to drain water off roadway approaching bridge. Repaired floats. New eye bolts and chains where required. Stone cap repaired.

Bridge No. 4 (Railway Bridge).

Repaired floats and walings. New eye bolts and chains where required.

Lock No. 6, and Level.

Fourteen new oak boxes put on shafts, and new steel cable put on in place of worn out copper cable.

Bridge No. 5, (Geneva Street).

Stone raised to receive the catch. Bridge painted two coats.

Lock No. 7, and Level.

The right head gate taken out and replaced by new spare gate. The old gate taken to yard, Port Dalhousie, hauled out on to skids, repaired and placed away on berths for future use.

One thousand nine hundred and seventy-six feet of surface ditching made at base of embankment to carry off lockage water from canal, and 960 feet ditching made, stoned and covered to carry off lockage from canal.

Eight hundred and thirty-four feet of roadway made at base of the bank to make connection with the side roads (cut off by the embankment of canal) for the public.

Cleared ice, slush and snow out of main ditch during severe freezing weather. Eleven new oak boxes put on shafts.

New storehouse built, 24 by 24, two storeys high, for keeping canal stores near Storekeeper's house. Converted partly finished house (bought along with the land when purchased a few years since) into residence for Storekeeper, so that he would always be quickly available in case of accidents and for regular distribution of supplies.

Bridge No. 6, Niagara Street.

Two new sign posts erected and caution signs placed on same at each end of bridge. Bridges thoroughly painted, also the approach fences. Roadway, south side, raised and graded to form highway; also, on north side, raised to turn water off. Fenders, walings and floats thoroughly repaired. New eye bolts and chains.

Cluster piles cut down, put on new walings and extra braces.

Lock No. 8, and Level.

Twenty-six new oak boxes put on shafts and new wood screws. One set of new gearing, for hoisting the valves, put on waste weir.

Lock No. 9, and Level.

Additional extra strong safety cables put on head Gates to prevent their being carried out by accident; also extra braced post placed at head of lock. One set of new gearing, for hoisting the valves, put on waste weir.

Foot gates taken out. Steps raised with $\frac{7}{8}$ inch boiler plate. Gates re-hung in place again.

Bridge No. 7 (Queenston Road).

Bridge painted. Fender works and floats repaired. The old, worn out planking taken off and re-planked with new. Road approach to the bridge raised and graded up so as to turn surface water off.

Lock No. 10, and Level.

Snubbing posts braced with extra heavy braces. One set of new gearing, for hoisting the valves, put on waste weir. Foot gates taken out. Steps raised with 1-inch boiler plate, and gates rehung in place.

Additional new extra strong safety cables put on head gates, to prevent their being carried out by accident. Level drawn off and new wrist pins put in valves of both foot gates and screws adjusted.

Bridge No. 8 (Homer Road).

Bridge painted. Fenders, floats and walings thoroughly repaired. New eye bolts and chains, &c.

Lock No. 11, and Level.

Eleven new oak boxes put on shaft. Four new cables, one water wheel and one new matrix put on lock gates.

Lock bottom cleaned out so as to allow the gates to work easily.

Lock No. 12, and Level.

Snubbing posts braced with extra heavy braces. One set of new gearing, for hoisting the valves, put on waste weir. Foot gates taken out. Steps raised with heavy boiler plate, and gates rehung in place.

DIVISION NO. 2.—FROM THE FOOT OF LOCK NO. 13 TO BRIDGE NO. 13 (MARLATTS).

Lock No. 13, Bridge No. 9, and Level.

One set of new gearing, for hoisting the valves, put on waste weir.
Braced snubbing posts with extra heavy braces.
Built platform in front of lock house and concreted floor of cellar to same.
Put on two new cables and one intermediate gear. Bridge painted.

Lock No. 14, and Level.

Put on one new steel collar under cannon, and new oak boxing on shafts.
Built platform in front of lock house and concreted floor of cellar to same.
Put on extra heavy braces to snubbing posts.
Put on one new cable, and one new brass matrix. Put two steel plates under cannon, and two new adjusting screws.

Lock No. 15, and Level.

Put new oak boxing on shafts, also one new adjusting screw and one new cable.

Foot gates taken out. Steps raised with boiler plate, and gates rehung.
One foot gate taken out and replaced by new spare gate. The old gate brought to yard, Port Dalhouse, and repaired and placed on berths for future use.
Concreted cellar floor of lock house.
Snubbing posts braced with extra heavy braces.

Lock No. 16, and Level.

Put on new boxes to shafts, also four new cables.
One extension step and two new matrices. Snubbing posts braced with extra heavy braces. Built platform in front of the lock house and concreted cellar floor to same.

Two watch houses 8 by 10 feet, built at David's Road Tunnel.

Lock No. 17, and Level.

Put on new oak boxes to shafts, also three new cables. Foot gates taken out, steps raised with boiler plate and gates rehung in place. Snubbing posts braced with extra heavy braces. Built platform in front of lock house and concreted cellar floor to same. Put on one new lever for water wheel shaft, also one new stand for lever.

One new lock-gate put in place of one damaged. Thrashed out a quantity of clover seed for sowing banks.

Two new valves, two cables, three shafts, one water wheel and three brass matrices put on gates.

Lock No. 18, and Level.

Put new oak boxes on shafts, also put on one new pinion. One intermediate gear, five cables, and two adjusting screws on lock gates.

Snubbing posts braced with extra heavy braces.

Built platform in front of lock house and concreted cellar floor to same.

Two watch houses, 8 by 10 feet, built at Grand Trunk Railway Tunnel.

Lock No. 19, and Level.

Put four new cables, one matrix, two shafts, one mast, six valves and one water wheel on lock gates.

Snubbing posts braced with extra heavy braces.

Built platform in front of lock house and concreted cellar floor.

Put one new adjusting screw and two pinions.

Repaired leak in bank at waste weir.

Lock No. 20, and Level.

Put on four new cables, three intermediate gear, one standard, two steel collars, and one new lever on lock gates.
 Snubbing posts braced with extra heavy braces.
 Built platform in front of lock house and concreted cellar floor.

Lock No. 21, and Level.

Snubbing posts braced with extra heavy braces.
 Built platform in front of lock house and concreted cellar floor.
 Drove ninety-five piles to form berths for new spare lock gates, and capped same, laid away spare gates and quarried out stone to sink them.
 Put on one new clutch post and three new clips.

Lock No. 22, and Level.

Put new oak boxes on shafts. Put five new pinions, three intermediate gear, three shafts, one matrix, and seven cables on lock gates. One head gate taken out and replaced by new spare gate, the old head gate brought to yard Port Dalhousie, repaired and placed on berth for future use. Built platform in front of lock house and concreted cellar floor.
 Snubbing posts braced with extra heavy braces.

Lock No. 23, and Level.

Put on three new cables, one coupling and two brass matrices on lock gates.
 Built platform in front of lock house and concreted cellar floor.
 Snubbing posts braced with extra heavy braces.
 Lock gate heel post dressed off.
 Repaired slide in bank at head of lock.

Lock No. 24, Bridge No. 10, and Level.

Put on six new cables, two brass matrices, one intermediate gear, one pinion, two rollers on lock gates.
 Built platform in front of lock house and concreted cellar floor.
 Snubbing posts braced with extra heavy braces.
 Painted store-house, derrick, and horse power.
 Put two gates at toe of bridge along roadway. Built 50 feet board fence to guide teams over canal bridge, also 225 feet barb wire and 40 feet board fence to enclose the gate yard at head of lock. Made and put on gate, towpath side, to keep cattle off the banks.

Built office 12 by 16 by 10 feet, completed same for Overseer. Lifted foot gates and dressed heel posts, put new steps under same and spliced two binders.

Bridge No. 11 (Railway Bridge).

Painted fender works of railway bridge, also Bridge-tender's house and put on new cornice.

Lock No. 25, Bridge No. 12, and Level.

Put four new cables and two steel collars on lock gates.
 Enclosed banks and Government lands with 1455 feet barb wire and 60 feet board fencing, hung two gates.
 Painted bridge house and put on new cornice also laid new floor. Repaired doors and windows.
 Built 40 feet railing at end of bridge.
 Put up two caution sign boards at each end of bridge.
 Put 30 cords stone at end of waste weir apron to prevent wash out.
 Faced banks along Marlatt's Pond with stone, old canal side.

Guard Lock and Level.

Raised and reset twenty-two snubbing posts from guard lock to Allanburgh.

Enclosed banks and Government lands with 1,584 feet barb wire fence on east side of canal and 214 feet board fence. Made and hung one gate.

Put in one new Lock gate and removed old one to Port Dalhousie shop.

Repaired and painted Guard Lock house and put on new cornice.

Made 540 feet of drain from Bear's Dams, culvert 2 feet at top 1 foot at bottom 5 feet deep, filled in with broken stone to carry off soakage from canal. Cleaned out 5 feet ditch between culverts to keep water from over-flowing highway during freshets.

Bridge No. 13 (Marlatt's).

Painted fender work of bridge.

Built two watch houses for Marlatt's, two for Higgins' and two for Davidsons' tunnels.

Shingled, painted and put on new cornice, bridge house.

Raised and set thirty-two snubbing posts, west side of canal, between Bridge No. 16 and Allanburgh.

*DIVISION No. 3.—FROM BRIDGE No. 13 (MARLATT'S) TO THE AQUEDUCT AT WELLAND.**Bridge No. 14 (Allanburgh).*

Repaired fender floats. Repaired waste weir and put on coping stone.

Bridge No. 15 (Port Robinson).

Repaired fender floats. Repaired road approach to bridge.

Repaired also wing walls at entrance of lock.

Repaired the lock gates. Repaired bridge on Hurricane Road.

Filled up mud hole at Port Robinson, and dug long ditch to drain off stagnant water from Lowry's Pond. Filled several stagnant ponds (small).

Bridge No. 16 (Quaker Road).

Repaired bridge damaged by propeller "Monteagle." Built new bridge across Quaker Road, over Government ditch, and repaired road east end of Bridge No. 16 (Quaker), by ditching and grading.

Welland Lock (New.)

Cleaned out lock chamber. Reset crabs and relaid floor around them. Put new lashing pins in foot gates, and caulked same. Repaired railing of gates and put new gunchions above valves on both head and foot gates.

Put down nine new snubbing posts.

Removed iron and put on new wood drums to all the crabs.

Banks.

Excavated for and set sixteen snubbing posts, and painted same. Repaired banks both sides of canal from Bridge No. 13 to Welland. Cleaned out and opened and put in box culverts in several places across canal tow path. Repaired fence around and boarded up windows and doors of parsonage house, near Welland.

*DIVISION No. 4—FROM AQUEDUCT 'WELLAND' TO PORT COLBORNE HARBOR.**Aqueduct (Welland).*

Built temporary shanty for Aqueduct Inspector's use passing vessels.

Two additional iron snubbing posts let into masonry and thoroughly secured.

Built one 16-foot punt for use at old aqueduct.
Removed semaphore north side of aqueduct 280 feet farther south.

Old Swing Bridge (Welland).

Raised and repaired old swing bridge several times.

Bridge No. 17 (Welland).

Removed semaphore wires from approach to swing bridge out of the contractor's way.

Bridge No. 19 (Junction).

In good condition.

Bridge No. 21 (Humberstone).

Bridge damaged by schooner "Westsides," being displaced 3 feet to the south and warped 2 feet out of shape. Several small castings broken, along with the double gear, rack and angle irons in centre of bridge; also ring around roller doubled and with several bolts broken.

Bridge raised and carried to place. Castings, double gear, rack and angle irons &c., all renewed.

Rock Cut.

Removed floats out of the contractor's way.

Repaired old floats frequently, and built 1,360 feet new floats and placed all in place.

Back Ditches.

Built bridge across back ditch between Humberstone and Port Colborne. Repaired apron at outlet of back ditch into canal, west side, and improved outlet.

Opened up back ditch between Humberstone and Port Colborne; also back ditch east side of canal, between Grand Trunk Railway and lake, and ditch west side of canal, near Lyon's Creek, and ditch north of Humberstone, west side and east side of canal, between Humberstone and Ranny's Bend.

Put rack across culvert east side of canal.

Bridge No. 23 (Port Colborne Lock and Harbor).

Repaired old breakwater and Lock tenders' houses. Cleaned out mitre sill of Lock and put on one cannon. Raised and reset snubbing posts around harbor along banks to bridge No. 21 (Humberstone). Repaired vessel measuring gauge at Port Colborne Lock. Built 200 feet tramway and trucks for building breakwater.

Built one new ferry boat—18 feet keel, 5 feet beam—side seats and slat floor.

Built 1,295 feet fencing around Government property.

GENERALLY.

Diver frequently engaged in cleaning mud and obstructions from mitre throughout.

All Locks and water-wheel gearing and shafts, waste weir machinery and bridge gearing continually overhauled and kept in order throughout the year. Ditches and culverts everywhere cleaned out and deepened throughout the charge.

Driftwood and sunken logs hauled out of channels. All thistles and noxious weeds cut down on all Government property.

FINES AND DAMAGES.

I have collected during the fiscal year from masters and owners of vessels a sum of \$762.47 in fines and damages for violation, of canal regulations and for

ges to the works, which amounts have been handed to H. H. Collier and W. B. Clarke, Esquires, Collectors of Canal Tolls, the former at St. Catharines, and the latter at Port Dalhousie, and I append a detailed statement herewith marked "A."

Amount paid H. H. Collier, Esq.....	\$335 86
Amount paid W. B. Clarke, Esq.....	426 61
Total.....	<u>\$762 47</u>

I also append a statement marked "B," showing the greatest and lowest depth of water on the mitre sills at Port Dalhousie and Port Colborne Locks in each month during the year; also a comparative statement of the average depth for the month of June, 1884 and 1885, which shows the water has been one-half inch higher at Port Dalhousie and two and one-half inches higher at Port Colborne than for the same month in the year 1884.

OLD WELLAND CANAL.

DETAILS OF REPAIRS AND MAINTENANCE OF WORKS ON THE OLD WELLAND CANAL.

Lock No. 1, Bridge and Level.

Dams were put in at the head and foot of Lock No. 1, and after much difficulty on leakages pumped out the water, when the mitre sills, planking of chamber throughout, aprons and mud pockets were found to require renewals and extensive repairs, so new well hole sheaves required throughout. Old gates were taken out and new are ones substituted. New and improved hangings being used. Rebuilt destroyed east wall. Old king and mitre sills and concrete removed and new substituted throughout. Mitre sills faced with heavy boiler plate. Repaired and removed the old injured stone coping, and built new in place of same. Track segment taken up, planed to equal thickness and reset. Put in five 40-foot pine sticks, 12 by 12, to form mud pocket and properly bolted same. Two steam pumps and boilers were required night and day to overcome leaks for couple of days, and one for several weeks. Drove twelve new oak piles along floating towpath in place of rotten ones, and capped same. Replanked parts of floor where required.

Lock No. 2, Bridge and Level.

Raised canal bridge on pivot several times. Built new heel approach and filled the same with stone and gravel. Adjusted rods of bridge. Put new cap on galleys same, changed rollers on bridge, and put on extra rollers. Put two pieces of track under bridge and renewed some of the planking.

Swing Bridge (Over Railway).

Raised bridge on pivot, replanked toe of bridge with 3-inch plank. Put new needle beam under bridge, also new caution sign.

Built new heel approach with timber and filled in the same with stone.

Raised crib under bridge, and put stone foundation under same. Renewed timbers under track and put all in proper adjustment.

St. Paul Street Bridge.

Stripped old planking off toe. Put false 3 by 6-inch stringers on top of present ties so as to make the bridge level on top whole length, and laid new planking. Laid cap stringers on top of floor and bolted same in place.

Put up new caution sign post and sign north end of bridge.

Lock No. 3, and Level.

In good condition.

Canal Office.

Lowered top masts of flag-staff. Repaired shrouds. Made seven window screens. Struck top masts of flag-staff; rove copper wire halyards. Put top mast in place and adjusted stays.

Some repairs made to office buildings.

Lock No. 4, Bridge and Level.

Raised canal bridge on pivot. Repaired stationary bridge below lock; put new caps 10 by 12 inches on top of bents, covered inside with 2-inch pine plank to retain clay and stone. Put on new stringers covered with 3-inch pine; through bolted side of bridge 40 by 12 feet.

Shifted anchors and crab on foot gates heel path side, and reset same.

Tightened bolts in bridge. Repaired floating toe-path. Put up new caution sign on bridge to prevent fast driving over same.

Put in box culverts across towpath.

Faced heel-path with stone.

Lock No. 5, Bridge and Level.

Raised canal bridge on pivot; put new rollers under toe of same; adjusted rods and braces.

Put new timbers under heel track of bridge. Painted bridge. Built new bridge 52 by 6 feet across waste weir, put railing on both sides 2 feet 9 inches high. Painted same; all complete.

Put new screw in valve, head gate towpath side. Moved lock house to Lock No. 6. Took down waste weir wing walls, and rebuilt same, and raised them 1 foot 6 inches higher with new stone work. Old work pointed, dug out and puddle behind wing walls.

Dug out foundation for abutments new bridge heel path side.

Lock No. 6, and Level.

Built new bridge 16 by 18 feet across waste weir head of lock heel path side and two stringers 8 by 12 inches. Covered with 3-inch pine planking and 6 by 8 inches cap stringers through bolted to stringers of bridge.

Built new roadway bridge 12 by 8 feet, head of lock; covered 3-inch pine planking and 6 by 8 inches cap stringers through bolted.

Spliced bents under bridge towpath side put new planking on inside to retain clay and stone. Dug out old abutments and rebuilt same toe-path bridge. Faced banks with stone.

Lock No. 7, Bridge and Level.

Painted bridge. Put new timber under and reset crab. Repaired float head lock.

Hydraulic Race.

Removed hospital building, overhanging race, and put foundation under same. Built truss bridge across race, back of hospital, 40 feet by 4 feet 8 inches. Drove 398 feet oak sheet piling, 9 feet long, along weak parts of banks confining raceway. Took down two old double rotten bulkheads and spillway near McDermott's foundry, and substituted single one, 68 feet by 14 feet, and gates in line. Built 155 feet supporting wall throughout on both sides. Thoroughly puddled bulkheads (2) and sheet piled. Built flume 20 feet by 3 feet by 4 feet, to foundry; bulkhead and gates for same. Relaid bottom of chute, and protected from ice by old iron gate bars.

screwed and bolted to planking. Built foot walk 90 feet long alongside, to allow men to keep ice clear. Took down old rotten bulkhead at head of shute or spillway, near head of aqueduct. Built new one 14 feet by 16 feet, properly lined and shuted, and finished with two controlling gates or valves, puddled thoroughly and connected with adjoining works. Made one drop gate and gearing for end of aqueduct.

Washout 162 feet long of Race Embankment near Gas Works.

Drove twenty-three oak piles 7 feet; centre-lined same with two thickness of 2-inch dressed and jointed, and third thickness of 1-inch dressed and jointed to make all water-tight. Laid extensions of solid timber at each end, 45 and 70 feet long, properly backed and puddled, and lined with 1-inch dressed and jointed.

Built 78 lineal feet high retaining wall, back of Holder's Nursery. Drove thirty-six oak piles foot of bank to form unyielding footing for new embankment that had to be built up from bottom of slope to fill up long gap, washed out, and filled all vacancy in front of same with concrete.

Built temporary sidewalk and hand-rail 100 feet long across gap. Built rod truss bridge across race, 40 feet by 5 feet; hand rail both sides.

Put down seven large anchor hold-back posts, and connected with tie rods to piles driven opposite side of race, until solid embankment could be brought up in layers to original height of the bank; after that was done, and all became consolidated, the anchor posts and rods were removed.

Drove oak sheet piling for a distance of 204 feet from end of break along weak parts of bank to prevent recurrence of similar disaster.

Deepened, widened and straightened the raceway, back of hospital, for a distance of 216 feet, and in vicinity of Holder's, for a length of 510 feet. Rebuilt 1,325 feet protection wire fence, and 50 feet dry retaining wall.

Gate Yard and Shop (St. Catharines).

Completed four low lift lock gates. Hauled out and stripped old gates from locks Nos. 13 and 15. Repaired and rebuilt same, when necessary, also partly completed others.

Framed pair lock gates for foot of Lock No. 3, and when completed laid them away in pond. Completed pair spare gates for Lock No. 2 and laid them away in pond.

Repaired and caulked lifting scow. Made twenty-four rammers or pounders.

Repaired forty-one wheel barrows, and made four new ones.

Made two frames for derrick gear. Set up derrick, and laid 145 feet track into shop, and made truck for same. Made five caution signs for swing bridges. Made and iron capped four snubbing posts. Made dumping boxes, also concrete mixing boxes. Made two through backed foot boards.

Gate Yard and Shop (Thorold).

Made seven ice chisels. Got out material and dressed the same for two new swing bridges.

Built two stone boats for quarry.

Built new derrick complete, and put same on deck of scow "Mud Hen," to hoist stones for rebuilding breakwater at Port Colborne.

Took crane scow "Hercules" to Welland.

Stripped the old lock, took out the foot gates and brought them down to yard and rebuilt them for Lock No. 25.

Put up derrick in yard for lifting heavy gate timber, &c. Hung spare gates and brought old ones to yard for repairs.

Lock No. 8, and Level.

Put new irons on foot boards of lock gates.

Put new railing on waste weir, 70 feet long, 2 feet 9 inches high. Painted same two coats.

Lock No. 9, and Level.

Put new timbers under and reset crab, head gate. Put new foot board irons on foot gates. Put temporary bridge across head of lock for winter use, and new railing, both sides same. Raised bridge across raceway at knitting factory, and put new bents under same, and new mud sill under the bents.

Lock No. 10, and Level.

Painted Lock-tenders' dwellings, two coats outside.

Lock No. 11, and Level.

Painted Locktenders' dwellings, two coats outside.

Lock No. 12, and Level.

Raised stationary bridge, head of lock, 36 by 12 feet, four stringers 8 by 12 inches covered with 2-inch pine plank.

Lock No. 13, and Level.

Took out broken head gate and replaced same with new. Put new anchors on in place of old broken ones; also new collar. Took broken lock gate to gate yard, St. Catharines, to be rebuilt. Put new timbers under and reset crabs, both sides of lock head gates.

Lock No. 14, and Level.

Built new sills under crab, and bolted same down.

Lock No 15, Bridge and Level.

Took out old broken head gate and put in new gate brought from pond at Lock No. 10, and took broken gate to yard at Thorold (Lock No. 21) to be rebuilt. Built new stone ballast box under bridge; also new toe approach 12 by 18 feet. Replanked bridge; adjusted braces and under rail; drew level down, and replanked apron of waste wier, 16 by 60 feet.

Put in two long timbers across hole at head of lock, towpath side.

Concreted between floor timbers, and put new bottom and apron to lock.

Put in new sheave block and reset crab.

Repaired washout in bank and fitted up approach of swing bridge.

Lock No 16, and Level.

In good condition.

Lock No. 17, and Level.

Rebuilt floats.

Lock No. 18, and Level.

Rebuilt four tiers of floating bridge crib timbers.

Put new slash boards on the waste wier.

Lock No. 19, and Level.

In good condition.

Lock No. 20, and Level.

Put new anchor on lock gate.

Lock No. 21, and Level.

Put down two new snubbing posts.

Built to top of water a skidway or tramway for hauling out gates and scows for repairs and renewals.

Repaired Lock-tender's house and washout in bank of waste weir.

Lock No. 22, Keefer Bridge, and Level.

Level drawn off, pumped out apron pit of waste weir, and filled up with thirteen cords of stone.

Erected new composite trussed swing bridge across canal, 75 by 14 feet (Keefer's).

Lock No. 23, and Level.

Repaired railing and painted same, and put new screws in valves of lock gates.

Lock No. 24, Bridge, and Level.

Put new post and knee under swing bridge.

Painted railing of waste weir bridge two coats.

Concreted between floor timbers, and put new bottom and apron to lock.

Built temporary bridge across lock for use of public during the erection of new swing bridge. Took down old swing bridge. Built new cut stone foundation for bridge track, segment and heel rest, and rubble stone for toe rest and heel approach; also protection wall of bridge on wing wall of lock.

Built new stationary bridge across waste weir approaching to bridge 22 by 32 feet, double sidewalk and railing, also two slope, retaining walls to same.

Built new fences each side of approaches; made and hung two 10-foot gates across heel path.

Built new composite truss swing bridge, 30 by 14 feet, across foot of lock, and new approaches to same, with side walk 4 feet wide on one side of bridge. Painted all.

Lock No. 25, and Level.

Rebuilt 2 feet in depth of the cement wall back of flume gates to mill pond; put in new sheet piling across head of flume.

Built new spillway, 35 by 8 feet sides, 5 by 30 feet through, bolted to every 6 feet, bottom 2 by 4 feet, edge, sides and bottom covered with dressed inch jointed. Put 6 new posts, and one sill in bulkhead, covered sides and bottom of bulkhead with inch lumber, dressed and jointed, bottom of bulkhead 3 feet thick, sides 2 feet.

Put railing across head of spillway, 3 feet high, dressed and chamfered; railing 32 feet long. Painted same two coats.

Dug out for new spillway and filled in again with puddle, &c.

Guard Lock, Hursts and Marlatts, Bridges and 3 Mile Level.

Laid a cement bottom back of valves Higgins' flume; excavated behind wing walls. Took down waste weir wing walls, rebuilt same, and raised them 2 feet higher with new stone work. Old work pointed, and filled up behind walls with puddle, &c.

Built new bridge across waste weir, 22 by 4 feet 6 inches, covered with 2-inch pine plank; changed head castings from face to top of breast wall; lengthened lifting rods of valves rendered necessary by bridge being raised. Faced towpath, little deep cut, with stone 550 feet long.

Allanburgh Bridge, Lifts and Guard Lock.

Put in dam at head of guard lock and waste weir adjoining to allow lock to be thoroughly repaired, and put in new plank floor to lock throughout and new apron;

made extensive repairs to mitre sills and lock gates and afterwards removed dam with hand dredges.

Cemented between floor timbers of lift lock; put in new bottom and apron.

Put new wrist pins and brasses in two valves and four new step brasses under lock gates.

Painted Bridge-tender's dwelling.

FEEDER JUNCTION TO DUNNVILLE AND PORT MAITLAND, 23 MILES.

From Dunnville to Stromness, and Port Maitland, distance $6\frac{1}{2}$ miles, there are two locks, four swing bridges, three waste weirs with thirty-six stop-gates. Toll bridge 600 feet long by 18 feet wide, and apron below dam 640 feet long. Eleven piers, 10 by 18 by 15 feet, and twenty-six flood gates. Toll-keeper's house, 1,000 feet boom timber in Grand River, 1,735 feet embankment, eight head gates at entrance to mill ponds, twelve stationary bridges with an aggregate length of 2,000 feet. Two Lock-tenders' houses, two bridge houses, five culverts. Overseer's house and office, work shop, repair scow and two punts, two piers and harbor with a depth of water from Lake Erie to outlet of canal of 19 feet, and to lock an average of 10 feet at low water line. From Stromness to Boulton Ditch, Marshville and Junction, $16\frac{1}{2}$ miles. One lock, three swing bridges, two stationary bridges, one sluiceway, three culverts and two ditches.

The supply of water has been greater than for many previous years, sufficient to furnish the mills and manufactories along the line to run with full supply to the close of the season.

There have been no accidents or delays caused to vessels, barges or rafts passing through the Feeder during the year. The mitre sills of Dunnville, Port Maitland and Junction Locks have been carefully cleaned out, and face planking repaired, screws and winches cleaned.

All sunken logs and other obstructions have been removed out of Feeder channel and entrance of waste weir.

The Stromness, Hall and Sunfish culverts, top timbers which were put on in 1855 had become, at the exposed ends, so decayed they were removed to low water line and replaced with five courses of 10 by 12 oak timber. The outsides were sheathed and topped covered with 2 and 3-inch plank.

The severe frosts of last winter lifted the piles under the seat of Stromness and Marshville swing bridges, and the caps had to be taken off and the tenons on the piles cut down so as to allow the turntable to come in proper line with the heel and the approaches.

All worn out and broken planks in the apron below the dam have been removed and new ones put in their places.

The old swing bridge which carried the roadway across the Junction Lock with its two approaches, built in the year 1858, has been taken down and replaced by new bridge on an improved plan. It is a substantial structure and can be turned by a pressure of 20 pounds.

It is the same length as the old one but two feet less in width.

The bridges have all been painted with lead and oil. The Lock-tender's house at Port Maitland has been painted and a board and a wire fence, with cedar posts, built around same. The flood gates on dam and waste weirs have been repaired.

The rubbish which was carried down the ditches off the low lands during the spring freshets, and lodged in great quantities in front of culverts has been taken out, piled and burnt, and logs, stumps, &c., removed from back ditches. The repair scow has been caulked, painted and the floor repaired. Two new landings have been built at the end of Fetch's Road foot bridges. The bridge repaired, also new chains attached so that the bridge can be opened or closed on either side.

Built one new chimney on Overseer's house; cleaned out and enlarged back ditch between Mossips' Culvert and Inman Road, a distance of $1\frac{1}{2}$ miles.

Built stone wall 60 feet long, 4 feet thick and 10 feet high, in rear of embankment in front of Scott's Woollen Factory. Removed the old bridge and filled the space with clay, to save the expense of another bridge.

Put in new drain of 7-inch sewer pipe in rear of canal bank, on north side, between guard lock and open swing bridge at Dunnville, to carry off the water that found its way through the bank into the cellars of the stores.

The boom timber on the south side of Grand River, which was partly broken and carried down by ice during spring freshets has been replaced and the chains repaired.

The lock and bridge shanties have been shingled, and received other minor repairs. Considerable repairs have been made on the canal banks during the past year by filling up the gullies made by heavy traffic, and widening and raising the banks with clay, as well as facing and strengthening them with gravel and stones, and filling muskrat holes.

The embankment across Grand River has been repaired, and holes levelled up with gravel.

Built new bridge across waste weir at Junction, 20 by 60 feet, seventy-five stringers, 6 by 12 inches, covered with 3-inch oak cap, stringers on floor, 6 by 8 inches through, bolted to stringers of bridge. Put new cap on centre bent 12 by 14 inches by 16 feet, oak. Repaired rollers and put on new panels.

GENERALLY.

All locks, waste weirs and bridges overhauled and kept in order whenever necessary, and ditches everywhere cleaned out and deepened throughout the charge.

All bridges blocked up for winter use.

All thistles and noxious weeds cut down on all Government property.

A. P. BRADLEY, Esq.,

Secretary Department Railways and Canals.

WILLIAM ELLIS,

Superintendent.

"A."

STATEMENT of Fines and Damages collected from Vessels Contravening Canal Regulations, for the Fiscal Year ending 30th June, 1885.

Date Collected.	Name of Vessel.	Fines.	Damages.	Total.
1884.		\$ cts.	\$ cts.	\$ cts.
July 7.....	Barge "Bavarian"		95 00	*
do 7.....	Tug "Metamora"	20 00		
do 21.....	Propeller "Armenia"	5 00	241 61	†
Sept. 23.....	do "Mont Eagle"		80 00	†
do 23.....	Tug "S. Neelon"	20 00		*
Oct. 7.....	do "Bruce"		36 25	*
do 13.....	Steamer "Empress of India"		49 85	*
Nov. 18.....	Propeller "Mont Eagle"	100 00		†
1885.				
Jan. 26	Propeller "Sir L. Tilley"		114 76	*
	Totals.....	\$145 00	617 47	\$762 47

* Handed to H. H. Collier, Esq., Collector, St. Catharines.

† do H. B. Clark, Esq., Collector, Port Dalhousie.

" B "

STATEMENT showing Depth of Water on the Lower Mitre Sill of Lock No 1, Welland Canal, at Port Dalhousie, for the Fiscal Year ending 30th June, 1885.

Months.	Lower Sill.		Months.	Lower Sill.	
	Highest.	Lowest.		Highest.	Lowest.
1884.	Ft. in.	Ft. in.	1885.	Ft. in.	Ft. in.
July.....	15 1	14 6	January.....	13 0	12 5
August.....	14 8	14 3	February.....	12 10	12 5
September.....	14 5	13 8	March.....	12 9	12 4
October.....	13 11	13 2	April.....	13 10	12 1
November.....	13 4	12 10	May.....	14 0	13 7
December.....	13 2	12 6	June.....	14 2	13 8

Ft. in.

Average, June, 1884..... 13 11

do 1885..... 13 11½

STATEMENT showing the Depth of Water on the Upper Sill of Lock No. 27, Welland Canal, at Port Colborne, for the Fiscal Year ending 30th June, 1885.

Months.	Upper Sill.		Months.	Lower Sill.	
	Highest.	Lowest.		Highest.	Lowest.
1884.	Ft. in.	Ft. in.	1885.	Ft. in.	Ft. in.
July.....	14 5	13 0	January.....	14 11	10 4
August.....	14 4	12 11	February.....	12 2	11 0
September.....	13 11	12 0	March.....	12 2	11 2
October.....	13 8	11 11	April.....	14 0	11 4
November.....	14 2	11 8	May.....	13 5	11 10
December.....	15 0	11 3	June.....	14 2	13 0

Ft. in.

Average, June, 1884..... 13 3

do 1885..... 13 5½

No. 7.

BURLINGTON BAY CANAL.

SUPERINTENDENT'S OFFICE,

ST. CATHARINES, 24th September, 1885.

SIR,—I have the honor to submit my report on the working and condition of the Burlington Bay Canal, for the year ending 30th June, 1885.

The canal was closed on the 18th December, 1884, and open on 1st May, 1885.

No interruption to the passage of vessels has occurred during the year.

The ferry scow was hauled out and found to require extensive repairs. It is now nearly equal to new.

No other outlay of importance has been necessary.

Your obedient servant,

WILLIAM ELLIS,
Superintendent.

A. P. BRADLEY, Esq.,
Secretary Department Railways and Canals.

NO. 8.

RIDEAU CANAL.

RIDEAU CANAL OFFICE,

OTTAWA, 30th September, 1885.

SIR,—I have the honor to submit the Annual Report on the state of the works under my charge for the fiscal year ending 30th June, 1885.

Navigation closed at Ottawa on 21st November, and at Kingston Mills, 18th November.

The through opening of navigation this year was delayed until 23rd, June owing to the damage caused by the spring freshet to the bulkheads of Long Island and the Hog's Back.

Navigation from Kingston to Manotick opened 11th May, and locking up to the Basin at Ottawa commenced 8th May.

The water in the different reaches, both ascending and descending, was well maintained until the close of navigation, except on the reach between Lower Brewer's and Kingston Mill, where it fell below navigation height by the end of August, and continued to fall until the close of navigation, when it was seven inches under.

This spring, owing to the long, steady winter and the depth of snow on the ground, extraordinary freshets occurred on the Rideau River at this end of the canal, and owing to the thickness and solidity of the ice when it commenced moving, serious damage was caused to the bulkheads at Long Island and Hog's Back, through which structures the flood waters are discharged.

At Long Island the high water found a passage underneath the frost line, through some old crib-work which had been left in the embankment, and in twenty-four hours a breach 60 feet wide by 30 feet deep, was made in the bank which joined the bulkhead with the main stone dam.

Owing to the high water nothing could be done to temporarily repair the damage until the 23rd of May, when a crib 73 by 56 by 16 feet, was sunk in the gap, and filled with stone. On top of this a temporary flat dam 13 feet high was built, enabling navigation to be opened by 23rd of June. The repairs have stood the pressure of 30 feet of water without any signs of failure so far.

This winter a framed bulkhead will take the place of the flat dam, which will increase the area of discharge 600 square feet, just double what it was previously. This with the openings at Manotick will be ample in future to discharge the heaviest freshets.

At the Hog's Back the bents of the bulkhead stood the pounding of the solid ice as it swept through the openings for two days when it finally gave way.

To illustrate the force of the current passing through the bulkhead, the fall being about 40 feet, one of the bents almost intact was found two miles down the river in a ploughed field. The others were carried down the stream, and rock, several tons weight, piled on them. The long apron below the bulkhead was entirely undermined, and a channel, from 70 to 80 feet wide, excavated out of the rock, on which it was built.

As soon as the water would permit an examination, the foundation of the bulk-head proper was found to be uninjured.

A temporary flat dam was at once built across the opening and navigation resumed.

The repairs to the apron have been commenced, and will be completed before winter sets in.

The renewal of the bulkheads at both Long Island and Hog's Back will have to be done during the winter after navigation closes.

Minor damages were done at Old Slys. The road bridge over the waste weir being carried away.

On the levels descending towards Kingston the water was exceedingly high also, at the White Fish Dam it was with great difficulty the flood could be controlled; men were kept on night and day repairing the dam as material was carried away by the water.

The principal repairs to the works have been as follows :—

KINGSTON MILLS.

Gravel and stone on dam and repairs to lower sill of upper lock.

BREWERS LOWER MILLS.

New stone house and repairs to Lock Master's house.

BREWER'S UPPER MILLS.

Swing bridge renewed, and new stone house built.

JONES' FALLS.

Repairs to lower sill of upper lock. New sluice frames, and repairs to machinery.

WHITE FISH DAM.

Two side piers built, and stone on dam.

DAVIS' STATION.

Repairs to Lockmaster's house. Cofferdam put in at head of lock. Wing walls and piers repaired. Two new sluice frames.

NEWBORO'.

Two pairs of lock gates framed and erected.

NARROWS.

Swing bridge renewed, and repairs to lock house.

POONAMALIE.

Rebuilt long dam and new bulkhead.

SMITH'S FALLS.

Clay delivered on basin to stop leakage.

OLD SLYS.

One pair of lock gates renewed, and new bulkhead.

MERRICKVILLE.

One pair of lock gates renewed. Two new bulkheads, and repairs to machinery.

CLOWES.

One pair of additional foot boards; repairs to bulkhead.

NICHOLSON'S.

Two additional foot boards and sundry repairs.

BURRITT'S.

Stone and gravel on embankment.

MANOTIC.

Repairs to swing bridge.

LONG ISLAND.

Repairing break in embankment, caused by spring freshet, and building temporary flat dam.

BLACK RAPIDS.

Planked back of long dam; one new pier, and repairs to moving piers.

HOG'S BACK.

Building temporary flat dam across the site of bulkhead, carried away by the spring freshet. Repairs to Lockmaster's house. Gravel on dam.

HARTWELL'S.

Repairs to Lockmaster's house.

DOW'S SWAMP.

Repairs to embankment and retaining wall built to widen and strengthen dam.

OTTAWA.

New stone sill put in Lock No. 5. General repairs to machinery, and repairs to wharves around basin.

The house of Collector's and Lockmaster's offices was completed last fall and occupied this spring.

With the exception of the delay to the opening, navigation was uninterrupted.

TAY CANAL.

Since my last report, Lock No. 2 has been completed, as well as the dredging required at the entrance of Lock No. 1,

BEVERIDGE'S BAY.

During the winter the contractors transported their dredge over land to the swamp at Station No. 27. It has been kept steadily at work excavating a channel through the swamp to the Tay River. Fair progress was made in the rock excavation under water in the river. The cuts at Frigell's and Dawson's being now nearly finished.

The high water this spring did considerable damage to their dams, all of which required to be overhauled as soon as the river fell to its usual stage.

Lock No. 1 has been commenced, but owing to the heavy leakage coming through seams in the rock underneath their dam, the lock pit was several times flooded, and a great deal of delay occasioned.

The cribs for the entrance piers are nearly all framed ready for sinking as soon as the lake falls to its low water stage.

Should the winter prove favorable for work the canal should be completed by next year.

Timber for the lock gates with all the necessary iron work was delivered ready for framing as soon as the locks are sufficiently advanced to warrant us making a commencement.

I have the honor to be, Sir,
Your obedient servant,

FRED. A. WISE,
Superintending Engineer.

A. P. BRADLEY, Esq.,
Secretary Department Railways and Canals.

No. 9.

TRENT CANAL.

ENGINEER'S OFFICE,

PETERBOROUGH, 31st August, 1885.

SIR,—I have the honor to submit the Annual Report on the works temporarily under my charge for the fiscal year ending 30th June, 1885.

From 1st July, 1884, the water on the several stretches was maintained at a height of 5 feet on the mitre sills of the locks.

The total number of lockages was 1,777. The greatest number at any one station was 1,225.

Navigation on the upper stretches closed about 10th November, and on the lower stretches, 12th November. It opened again 25th March. Navigation continued throughout the year uninterrupted.

The traffic on these waters has considerably increased this season. Four new steamboats being added to the fleet already on this route.

The following is a brief statement of the repairs executed at each of the stations during the year.

FENELON FALLS.

The boom dividing the steamboat channel from the log channel was repaired and placed in position. The new locks and canal under construction at this station are nearing completion.

LINDSAY.

The hulls of several old steamboats have been left in the river. One of these which had sunk near the wharf was removed last fall.

SCUGOG RIVER.

The sunken logs and snags which had drifted into the navigation channel were removed.

BOBOAYGEON.

The cribwork on the north side of the upper entrance to the canal was raised one stick and the whole filled with gravel. This now constitutes a solid embankment. A coat of Portland cement was placed on top of the pier of the swing bridge. The dams, which retain the water at Sturgeon Lake at navigable height, are in a very decayed condition and leak very badly. A new dam is urgently needed. A line of crib work was placed on the shore of the island at the lower entrance of the lock, to prevent boats and barges from grounding. This has been of great benefit to navigation.

BUCKHORN.

The piers of the south sluice were raised four courses high. The new lock and canal at this station are completed with the exception of the lock gates.

BURLEIGH.

The works at this station were erected for the benefit of the lumbermen, by a committee appointed by themselves. The works are much out of repair, and a memorial has, I believe, been addressed to the Department praying that the necessary repairs be done. New locks and dam are under construction at this point.

YOUNG'S POINT.

The new dam at this station has been about completed. The channel between the island and the Dummer shore was cleared of boulders to enable the logs to pass through.

LAKEFIELD.

The trade between this point and the upper lakes has much increased of late. A new steamboat has been placed on these waters this season. A boom is being placed on the stretch between here and Young's Point to separate the steamboat channel from the log channel. This will be of great benefit to navigation as the blocking of navigation by logs has been a great source of annoyance.

PETERBOROUGH.

The accumulations of sawdust in the lake and river have become so great that navigation in many places will cease in a very short time. An appropriation was made some two years ago for the removal of the sawdust, which was done, but it has all filled up again. The entrance of the river into Rice Lake is by three mouths, two of which formerly used for navigation have been closed by sawdust. Boats are now compelled to take the western channel, which adds considerably to the length of the route.

WHITLAW'S RAPIDS.

A cribwork 150 feet long was placed on the east side of the lower entrance of the lock to prevent the current from the river striking vessels approaching the lock. The upper lock gates were removed and some repairs done to the rollers and track. The sawdust is also a great source of annoyance here, as it banks up against the gates rendering them almost impossible to open.

HASTINGS.

Two new courses were placed on the tops of all the lock gates, and the opening gearing repaired. The back of the lock wall next to the river was rebuilt with loose masonry. The swing bridge received some slight repairs.

HEELY'S FALLS.

This dam retains the water between this point and the village of Hastings, a distance of about 15 miles. A break occurred in the dam during the spring of 1884. This was repaired.

CHISHOLMS.

The dam at this station was replanked. The lock chamber was painted with Portland cement. The sluiceway on the south side of the dam was prepared for the

passage of timber. Logs will now be kept on the south side instead of passing over in front of the dam to the north side. A small steamboat has been placed on this stretch.

I have the honor to be, Sir,

Your obedient servant,

RICHARD B. ROGERS,

Acting Superintending Engineer.

A. P. BRADLEY, Esq.,

Secretary Department Railways and Canals.

No. 10.

ST. PETER'S CANAL.

OTTAWA, 16th September, 1885.

SIR,—I have the honor to submit the following relative to the St. Peter's Canal.

Owing to the opening of the Eastern Counties Railway to the Strait of Canso, an increase took place in the traffic through the canal, and a large class of steamers was placed on the route to Sydney, C.B. These, owing to their breadth and height above the water, found it somewhat difficult to pass without touching the rocky sides and the retaining wall, and though floating fenders had been placed to prevent this they were found not to be serviceable. During the summers of 1883-84-85, hanging fenders and posts and guards were placed at intervals on both sides of the canal, and though some of the former have been carried away or damaged by reason of carelessness on the part of those navigating vessels, yet they have proved to be of much benefit.

An experiment is being tried in the use of fenders made of "withes," which are bound into bundles, and when struck yield to the pressure, and when relieved recover their shape.

To define the Northern or Bras d'Or entrance, it became necessary to build a retaining wall on the eastern side, 331 feet in length, which was brought to completion at the close of 1884.

The retaining wall on the western side of the canal has been raised to an average height of 7 feet above the surface of the water. The Lockmaster's house has been thoroughly painted and the storehouse whitewashed. The boundary fence has been put in repair. A number of new joists have been placed in the swing bridge, the flooring of which has been renewed and the whole structure painted.

As much difficulty was experienced in opening the swing bridge during high winds, a couple of "winches" have been placed in small sheds to assist at such times.

During the past year the wood work in the gates and the portions of the retaining wall below water were examined with the view of ascertaining if the "sea-worm" (*teredo navalis*), so disastrous in their effects at St. Peter's, had attacked them, and it gives me much pleasure to state that the precautions I took at the time of their construction, when the canal was enlarged, have been most successful in repelling their attacks.

The gates and swing bridge are in good order, and work as well as when first placed in position.

Navigation through the canal closed on the 2nd January, and opened on the 1st May of the present year.

The following is a statement of the traffic through the canal during the fiscal year ended 30th June, 1885 :—

Year.	Vessels.		Tonnage.		Tolls Collected.	
	North.	South.	North.	South.	North.	South.
1884.	No.	No.	Tons.	Tons.	\$ cts.	\$ cts.
July.....	88	60	15,164	1,121	202 10	113 22
August.....	130	93	20,606 ^a	1,101	180 21	321 13
September.....	88	102	6,432	10,517	162 11	224 52
October.....	122	107	5,670	14,211	230 19	260 70
November.....	80	68	6,268	8,206	189 22	225 43
December.....	36	23	2,207	2,116	62 32	32 95
1885.						
January.....	2	2	80	140	2 40	2 41
April.....		1		56		1 12
May.....	79	66	4,901	2,516	46 05	80 15
June.....	90	103	5,607	9,344	70 10	38 30
Totals.....	715	619	66,935	49,328	1,144 70	1,299 93

I have the honor to be, Sir,
Your obedient servant,

HENRY F. PERLEY,
Engineer in Charge.

A. P. BRADLEY, Esq.,
Secretary Department Railways and Canals.

No. 11.

UPPER ST. LAWRENCE AND TRENT VALLEY CANALS.

PETERBOROUGH, 23rd November, 1885.

SIR,—I beg to enclose herewith my Annual Report of the works in my charge, for the fiscal year ending 30th June, 1885.

I have the honor to be, Sir,
Your obedient servant,

TOM. S. RUBIDGE.

A. P. BRADLEY, Esq.,
Secretary Department Railways and Canals.

PETERBOROUGH, 1st November, 1885.

SIR,—I have the honor to report on the works under my charge for the fiscal year 1884-85, and generally to the present date.

These works are, the Murray Canal and Galops Rapid improvements on the Upper St. Lawrence River, the surveys for the proposed Trent Valley Canal, and the works of construction authorized and in progress in connection therewith, viz.,

the dams at Lakefield and Young's Point, and the canals at Burleigh Falls, Buckhorn Rapids and Fenelon Falls.

UPPER ST. LAWRENCE RIVER.

Murray Canal

Connects the Bay of Quinté, the natural head of river navigation, with the harbour of Presqu'île on Lake Ontario. It is situated in the County of Northumberland, about seventy-five miles west of Kingston, and 120 miles from Port Dalhousie, the entrance to the Welland Canal.

The works extend over a distance of nine and a half miles, of which fully six miles, representing the canal proper—a through cut across the Isthmus of Murray, four and a quarter miles in length, and entrances thereto—are located on a perfectly straight line, extending from the navigable channel off twelve O'clock Point in the Bay of Quinté, to deep water in Presqu'île Harbor, near the wharf.

Thence to the open lake, off the lighthouse on Presqu'île Peninsula, about three and a half miles, some detached stretches of submarine excavation occur on the surrounding shoals, of which, that crossing the middle ground is the most important, and is intended to form the new entrance to the harbor.

The work of excavating the channel continues to be performed wholly by dredging, and has now been carried over the entire extent of the canal proper, *i.e.*, from the Bay of Quinté to Presqu'île Harbor. The progress made has been uniform, and in every way satisfactory; seven powerful dredges having been constantly employed, throughout the season, and are stationed as follows, *viz.* :—

“Central City” at the Bay of Quinté entrance; “St Charles” and “Ontario” in Dead Creek Marsh, Faugh-a-Ballagh and “Wolverine” at Gould's Clearing and the “Goliath” and “John Page” in Presqu'île Harbor.

The nature of the excavation agrees generally with the information obtained on the location survey, as represented to intending contractors.

The culverts or inlets for diverting Dead Creek, have been constructed; and all the cribs for the Bay of Quinté entrance piers have been framed, and are intended to be sunk this season.

The masonry and cribwork of the Trenton Road Bridge, which was built to high water level last season, and of the Central Ontario Railway Bridge, commenced in June last, have both been completed, and are ready for the superstructure. On the 1st of July, by arrangement with the railway authorities, the track was temporarily deflected to the west of the bridge pit, to admit of construction being proceeded with more expeditiously, it being understood that no unnecessary delay would take place in providing the superstructure and restoring the original alignment.

The contract was entered into with Messrs. J. D. Silcox & Co., on the 24th August, 1882, to be completed 1st July, 1885.

Galops Rapid Improvements.

This rapid, the first of the series which obstruct navigation, in descending the St. Lawrence, is situated about seven miles below Prescott, at the commencement of the Williamsburgh Canals.

The improvements consist in the formation by submarine excavation of a straight channel through the rapid, two hundred feet wide on bottom, with a minimum depth of seventeen feet at ordinary low water.

The new channel extends over a distance of three-quarters of a mile, traversing, in descending order, the undermentioned rocky shoals, known as the “Upper Bar,” the “North,” “Caledonia” and “Island Shoals” and the “Lower Bar.” Of these “Lower Bar” and “Island” (the most extensive) together with “Caledonia,” “North” and part of the “Upper Bar” have been drilled and blasted.

The "Island" and also the greater portion of the "Lower Bar," have been dredged and completed.

Season of 1885.

The torpedo scow resumed drilling and blasting operations on the "Lower Bar" 7th May, and finished 4th August. She was next engaged between 6th and 21st August in reducing the Caledonia Shoal and from thence moved over to "North Shoal," completing the work there on 2nd September. On 8th September she commenced work on the north side of the "Upper Bar," the only remaining shoal, and where she will be continued until the season closes.

The chain vessel or dredge, which during last winter, underwent extensive repairs at Montreal, arrived up on 13th June and on the 25th commenced dredging operations on the "Lower Bar," which will be continued during the remainder of the season.

The whole of the contractor's plant engaged on the works, including the chain vessel, and torpedo scow, will be wintered in the neighborhood of the rapid.

The work now nearing completion was commenced in 1880, under the skilled management of the present contractors, who have been exceptionally successful in conducting their very difficult undertaking.

The contract was originally entered into with Messrs. William Davis & Sons, 5th August, 1879; subsequently, 30th June, 1882, with the consent of the Government, it was transferred to Messrs. E. E. Gilbert & Sons, the present contractors.

TRENT VALLEY CANAL.

Surveys.

The additional information relating to Baird's original project, *i. e.*, the closer adherence to the rivers and lakes, suggested as an alternative route, so far as has been obtained, points to the conclusion that no material reduction can be made in its estimated cost as compared with the direct line, of which, the general results have already been communicated to the Honorable the Minister.

And as pertinent to the cost of this vast undertaking, and more particularly in the event of further works being authorized, an important element, apart from the actual construction, presents itself for the consideration of the Government. I refer to the excessive claims of riparian owners for damages, as exemplified in connection with the Fenelon Falls Canal, and other isolated works now in progress or completed, on the Back Lakes Division from Balsam Lake to Lakefield, and upon the Trent and Otonabee Rivers.

Throughout this chain of waters, the inhabitants, for whose benefit the completed improvements and other works in progress were designed, now complain of the injury they have caused, and seek redress therefor. Under these circumstances, it appears to me, if the projected canal possesses even a limited share of the importance which is attributed to it by those locally interested, or is deemed worthy of improvement by the general Government, it should readily be conceded that the bed and waters of the rivers and intermediate lakes, traversed by the main line between the Lakes Huron and Ontario, are public property and belong to the State, and that therefore, manufacturers, steamboat owners and other private persons have no right to encroach upon them. Also, that all claims of riparian owners to rights in hydraulic power, and the bed of these rivers and lakes, should be disallowed by the Government, except in Ontario cases, as when the water power has been so long used as to have become a prescriptive right.

I, therefore, respectfully submit for the consideration of the Honorable the Minister, that as a preliminary step to proceeding further with any new works, the necessity which in my opinion exists for an immediate and thorough investigation by the proper authority of the whole subject of riparian rights, in order that the ultimate position of the Government may be determined and defined.

TRENT NAVIGATION.

CONSTRUCTION.

The works authorized in connection with the Trent Valley Canal, and in various stages of progress, are as follows:—

Lakefield Dam.

This structure, which replaces a private dam built by the mill owners, and expropriated by the Government in 1882, is situated in the village of Lakefield, at the head of the Nine Mile Rapids of the Otonabee, and is designed to regulate the level of Katchiwannoe Lake for the purposes of navigation.

The contractor, from a desire to avoid undue interference with the steamboat and milling and lumbering interests, postponed its commencement until late in the season of 1884, when by vigorously prosecuting the work during the winter months, he succeeded in so far completing the dam as to render it available during the ensuing spring freshet.

It has been completed during the freshet season, together with all necessary anchor piers and booms connected with the timber slide, and fully answers the purpose for which it is designed.

The contract was entered into with Mr. Charles Wynn, 9th March, to be completed 1st December, 1884.

Young's Point Dam

is situated on the Otonabee River, between Lake Katchiwannoe and Clear Lake, and also replaces a private dam. It regulates and controls the levels of the navigable reach, extending upwards through Clear and Stony Lakes to the Burleigh Canal.

The work was commenced in July, 1884, and practically finished, ready for use, on the opening of navigation last spring. It is now fully completed, including anchor piers, booms, &c., and, like the dam at Lakefield, of which it is a counterpart, answers all the purposes for which it is intended, and is, moreover, a credit to the contractor, who is highly commended for his unflagging exertions in prosecuting and completing both works, notwithstanding the adverse action of lumbermen and others, whose private interests, should not in future be permitted to interfere with the progress of public works.

Both dams were submitted to an extraordinary test during the abnormal stage of water which prevailed in the spring of 1885.

The navigation on Katchiwannoe and Clear Lakes has been uninterrupted during the whole of the past season, and their new levels have been maintained without difficulty.

The contract was entered into with Mr. Charles Wynn, 23rd January, 1884, to be completed 1st December, 1884.

Burleigh Canal.

This work extending from Burleigh Bay on Stony Lake to Deer Bay Lake, a distance of about two and a quarter miles, consists in the construction of two combined locks and the necessary bridge piers at Burleigh Chute; also of the main regulating dam, and other dams in the immediate neighborhood of the chute. And of a lock and regulating dam at the Lovesick Rapids, with detached dams at the other outlets from Deer Bay.

Since my last annual report the work up the end of August, 1885; was practically abandoned; subsequently, however, the contractor has exhibited a disposition to proceed with it, and has already made some progress with the excavation both at Burleigh and Lovesick.

In April last, in anticipation of further action in reference to this contract, it was considered advisable to test the practicability of closing the Burleigh Chute by

utilizing the existing stop logs, as stated in the specification; this was accordingly done by special arrangement with Mr. Charles Wynn, who succeeded in converting the structure into an effective coffer dam at a cost of \$750.

The contract was entered into with Mr. George Goodwin, 27th September, 1882, to be completed 1st July, 1885.

Buckhorn Canal.

Comprises a lock and short reach of canal located on the north bank of the Upper Rapids, between Deer Bay and Buckhorn Lakes; also the improvement of the channel through Little Buckhorn or Lower Rapids.

The work was commenced in March, 1883, and completed in December, 1884.

A small expenditure for maintenance was rendered necessary, in consequence of the failure during the spring freshet of the stop logs in the lock, and the partial destruction of the temporary road bridge supplied by the contractor.

The contract was entered into with Mr. George Goodwin, 27th September, 1882, to be completed 1st September, 1884.

Plans and specifications for the lock gates have been prepared.

Fenelon Falls Canal.

This work is situated at the Falls, between Cameron and Sturgeon Lakes, in the centre of the Village of Fenelon Falls, it consists in the formation of two combined locks and a short reach of canal leading upwards to Cameron's Lake. The contract also includes the construction of piers and abutments in connection with an opening to be formed in the centre span of the Victoria Railway Bridge.

Work was commenced on the 16th October, 1882, and prosecuted to its completion on the 22nd October, 1885.

In connection with the canal and upper lock, a headrace of masonry for hydraulic purposes has been constructed by the contractor under special arrangement; and to avoid further conflict with persons claiming riparian rights, the contractor has been relieved of the construction of the central, or pivot pier of the opening required to be formed in the railway bridge.

The work throughout has been conducted and completed in a highly satisfactory manner, and reflects the greatest credit on the contractor.

The contract was entered into with A. F. Manning & Co, 14th October, 1882, to be completed 1st July, 1885.

Plans and specification have been prepared for the lock gates required on this work.

I have the honor to be, Sir,
Your obedient servant,

TOM S. RUBIDGE,
Engineer-in-Chief.

A. P. BRADLEY, Esq.,
Secretary Department Railways and Canals.

APPENDIX No. 12.

LIST of Contracts entered into in connection with the Canadian Pacific Railway.

No. of Contract.	Names of Contractors.	No. of Contract.	Names of Contractors.
1	Sifton, Glass & Co.	52	North-West Transportation Co.
2	Richard Fuller.	53	Barrow Hematite Steel Co.
3	F. J. Barnard.	54	Guest & Co.
4	Oliver, Davidson & Co.	55	West Cumberland Iron and Steel Co.
5	Joseph Whitehead.	56	The Kellogg Bridge Co.
5a	Joseph Whitehead.	57	The Truro Patent Frog Co.
6	Guest & Co.	58	W. Hazelhurst.
7	Ebbw Vale Steel, Iron and Coal Co.	59	Whitehead, Ruttan & Ryan.
8	Murray Steel and Iron Co.	60	D. O. Mills.
9	West Cumberland Iron and Steel Co.	61	D. O. Mills.
10	West Cumberland Iron and Steel Co.	62	D. O. Mills.
11	Naylor, Benson & Co.	63	D. O. Mills.
12	Hon. A. B. Foster.	64	Ryan, Whitehead & Ruttan.
13	Sifton & Ward.	65	James Crossen.
13	Purcell & Ryan.	66	Bowie & McNaughton.
14	Sifton & Ward.	67	Moncton Car Co.
14	Jos. Whitehead (completing contract No. 14).	68	Ontario Car Co.
15	Joseph Whitehead.	69	North-West Transportation Co.
16	Canada Central Railway Co.	70	North-West Transportation Co.
17	Anderson, Anderson & Co.	71	Toronto Bridge Co.
18	Red River Transportation Co.	72	Ontario Car Co.
19	Moses Chevette.	73	Toronto Bridge Co.
20	Merchants Lake and River Steamship Co.	74	Wm. Gooderham, jun.
21	Patrick Kenny.	75	Pillow, Hersey & Co.
22	Holcomb & Stewart.	76	Cooper, Fairman & Co.
23	Sifton & Ward.	77	Stubbs & Co.
24	Oliver, Davidson & Co.	78	Skead & Haycock.
25	Purcell & Ryan.	79	The Truro Patent Frog Co.
26	James Isbester.	80	James Crossen.
27	Merchants Lake and River Steamship Co.	81	Dunlop & Rannie.
28	Red River Transportation Co.	82	Ontario Car Co.
29	Cooper, Fairman & Co.	83	James Crossen.
30	Robb & Co.	84	Ontario Car Co.
31	Patent Bolt and Nut Co.	85	Nobles & Follis.
32	Cooper, Fairman & Co.	86	Fairbanks, Morse & Co.
32a	LeMay & Blair.	87	James Crossen.
33	Kavanagh, Murphy & Upper.	88	Walter Oliver.
34	North-West Transportation Co.	89	J. Patterson.
35	Cooper, Fairman & Co.	90	Ferris, Paul & Milwar.
36	William Robinson.	91	Canadian Pacific Railway Co.
37	Heney, Charlebois & Flood.	92	Andrew Onderdonk.
38	Edmond Ingalls.	93	Andrew Onderdonk.
39	John Irving.	94	Horton & Son.
40	Gouin, Murphy & Upper.	95	Bayliss, Jones & Bayliss.
41	Purcell & Co.	96	Guest & Co.
42	Manning, Macdonald, McLaren & Co.	97	John McDonald.
43	Joseph Upper & Co.	98	Colin Nicol Black.
44	West Cumberland Iron and Steel Co.	99	Canadian Pacific Railway Co.
45	Barrow Hematite Steel Co.	100	A. Onderdonk, station building, Yale.
46	Ebbw Vale Steel, Iron and Coal Co.	101	A. Onderdonk, station building, Lynden.
47	Patent Bolt and Nut Co.	102	A. Onderdonk, station building, A. Croft.
48	John Ryan.	103	John Philip Bacon, water tanks.
49	Richard Dickson.	104	A. Onderdonk, station buildings.
50	Miller Brothers & Mitchell.	105	Willson & McCready, engine house.
51	Dominion Bolt Co.	106	Wrighton & Co., iron piles.

APPENDIX No. 13.

ST. LAWRENCE NAVIGATION.—TABLE OF DISTANCES.—A.

FROM STRAITS OF BELLE-ILE TO PORT ARTHUR, AT HEAD OF LAKE SUPERIOR, BY WATER.

From	To	Sections of Navigation.	Statute Miles.	
			Inter- mediate	Total to Straits of Belle-Ile.
Straits of Belle-Ile	Cape Whittle.....	Gulf of St. Lawrence.....	240	240
Cape Whittle.....	West Point, Anticosti.....	do	201	441
West Point, Anticosti.....	Father Point	River St. Lawrence.....	202	643
Father Point.....	Rimouski	do	6	649
Rimouski	Bic.....	do	12	661
Bic.....	Isle Verte	do	39	700
Isle Verte (opp. Saguenay) ..	Quebec	do	126	826
Quebec	Three Rivers.....	do to Tide-water	74	900
Three Rivers	Montreal	do	86	986
Montreal	Lachine	Lachine Canal.....	8½	994½
Lachine	Beauharnois	Lake St. Louis.....	15½	1,009½
Beauharnois	Ste. Cécile	Beauharnois Canal	11½	1,021
Ste. Cécile	Cornwall	Lake St. Francis.....	32½	1,053½
Cornwall	Dickinson's Landing.....	Cornwall Canal	11½	1,065½
Dickinson's Landing.....	Farran's Point.....	River St. Lawrence.....	5	1,070½
Farran's Point.....	Upper end of Croyle's Island.	Farran's Point Canal	3	1,071
Upper end Croyle's Island.	Williamsburg or Morrisburg.	River St. Lawrence.....	10½	1,081½
Williamsburg	Rapide Plat	Rapide Plat Canal	4	1,085½
Rapide Plat	Point Iroquois Village	River St. Lawrence.....	4½	1,090
Point Iroquois Village	Upper end Presqu'Île.....	Point Iroquois Canal.....	3	1,093
Presqu'Île	Point Cardinal, Edwards- burg	Junction Canal.....	2½	1,095½
Point Cardinal	Head of Galops Rapids.....	Galops Canal	2	1,097½
Galops Rapids.....	Prescott.....	River St. Lawrence.....	7½	1,105
Prescott.....	Kingston	do	59	1,164
Kingston	Port Dalhousie	Lake Ontario.....	170	1,334
Port Dalhousie.....	Port Colborne	Welland Canal	26½	1,360½
Port Colborne	Amherstburg	Lake Erie	232	1,592½
Amherstburg	Windsor	River Detroit.....	18	1,610½
Windsor	Foot of St. Mary's Island.....	Lake St. Clair.....	25	1,635½
Foot of St. Mary's Island.....	Sarnia	River St. Clair.....	33	1,668½
Sarnia	Foot of St. Joseph's Island.....	Lake Huron	270	1,938½
Foot of St. Joseph's Island.....	Foot of Sault Ste. Marie	River St. Mary	47	1,985½
Sault Ste. Marie	Head of Sault Ste. Marie	Sault Ste. Marie Canal... ..	1	1,986½
Head of Sault Ste. Marie.....	Pointe aux Pins	River St. Mary.....	7	1,993½
Pointe aux Pins	Port Arthur	Lake Superior	266	2,259½
Port Arthur to Lake Shebandowan.....			45	
Lake Shebandowan to North West Angle.....			312	
North West Angle to Winnipeg			95	
Pointe aux Pins to Duluth			390	

Of the 2,259½ miles from the Straits of Belle-Ile to the Head of Lake Superior, 71 miles are artificial navigation, and 2,188½ open navigation.

Straits of Belle-Ile to Liverpool, 1,942 geographical or 2,234 statute miles.

The total fall from Lake Superior to Tide-water is about 600 feet.

The Steamboat voyage from Collingwood to Port Arthur is 532 miles.

APPENDIX No 14.

TABLE of distances of Stations between the Cities of Ottawa and Kingston.

No of Station.	Name of Station.	Distances from Ottawa.	Locks.			Dams.			Length of Arti- ficial Canal at each Station, in miles.
			No.	Lift at Low Water.		No.	Length.	Height.	
				Rise Ft.	In.					Feet.	Feet.
1	Ottawa.....	0	8	82	0	3	230 1,320 1,616	18 33 14	4.00
2	Hartwell's	4½	2	22	0	.....	100	28	
3	Hogsback.....	5½	2	13	6	1	320	60	
4	Black Rapids.....	9½	1	10	0	1	300	12	0.13
5	Long Island.....	14½	3	27	0	3	850	68	0.13
6	Burritt's.....	40½	1	10	6	1	240	14	1.50
7	Nicholson.....	43½	2	15	2	1	500	9	0.50
8	Clowes.....	44½	1	10	6	1	481	16	0.05
9	Merrickville.....	46½	3	25	0	1	150	6	0.33
10	Maitland.....	55	1	4	9	1	270	8	0.13
11	Edmunds.....	59½	1	10	10	1	343	8	0.06
12	Old Slys.....	60½	2	15	6	1	250	20	0.25
13	Smith's Falls.....	61½	4	33	9	2	600	24	0.13
14	First Rapids or Poonamalie.....	64	1	7	9	1	260	5	1.25
15	Narrows.....	83½	1	4	0	1	600	9	0.06
Total rise at low water .....		.....	.....	292	3	.....	.....	.....	.....
		.....	.....	Fall.	.....	.....	.....	.....	.....
16	Isthmus.....	87½	1	4	0	.....	.....	.....	1.25
17	Chaffey's.....	92	1	12	6	.....	.....	.....	0.13
18	Davis.....	94½	1	9	0	1	300	15	0.06
19	Jones' Falls.....	97½	4	60	0	1	300	60	0.25
20	Brewer's Upper Mills.....	108½	2	19	0	1	200	20	1.75
21	do Lower Mills.....	110	1	14	2	1	200	12	4.25
22	Kingston Mills.....	120½	4	46	8	1	6,042	14	0.25
23	Kingston.....	126½	.....	.....	.....	.....	.....	.....	.....
Total fall at low water.....		.....	.....	165	4	.....	.....	.....	.....
Total.....		.....	47	.....	.....	24	15,472	.....	16.46

APPENDIX No. 15.

TABLE showing the dates of the closing of the Canals in the Autumn of 1884 and of the opening in the Spring of 1885.

Canals.	Closing.	Opening.
Lachine Canal.....	30th November, 1884.....	4th May, 1885.
Beauharnois Canal... ..	1st December, 1884.....	3rd do 1885.
Cornwall Canal.....	8th do 1884.....	8th do 1885.
Williamsburg Canal.....	7th do 1884.....	4th do 1885.
Welland Canal—		
New Canal.....	4th do 1884.....	5th do 1885.
Old Canal.....		
Burlington Bay Canal.....	18th do 1884....	1st do 1885.
St. Anne's Lock and Dam.....	24th November, 1884.....	5th do 1885.
Carillon Canal.....	26th do 1884.....	7th do 1885.
Grenville Canal.....		
Culbute Lock and Dam.....	27th do 1884.....	18th April, 1885.
Chute à Blondeau.....		
Rideau { Kingston Mills.....	24th do 1884.....	11th May, 1885.
{ Ottawa.....	18th do 1884.....	8th do 1885.
St. Ours Lock.....	26th do 1884.....	23rd April, 1885.
Chambly Canal.....	30th do 1884.....	4th May, 1885.
Erie Canal (New York).....	1st December, 1884.....	11th do 1885.
St. Peter's Canal (Cape Breton).....	2nd January, 1885....	1st do 1885.
Trent Canal Works.....	10th and 12th Nov., 1884.	25th March, 1885.

APPENDIX No. 16.

STATEMENT of Contracts entered into between 1st July, 1884, and 30th June, 1885.

Railways and Canals.	Deed, Letter or otherwise under which contract was made.	Name of Contractor.	Date of Contract.	General Description.
Canadian Pacific Railway	Deed No. 7,690.....	A. Onderdonk.....	Nov. 6, 1884	Erect a combined passenger and freight building, at Yale, B.C., for Canadian Pacific Railway.
do	do 7,691.....	do	do 6, 1884	Erect a combined passenger and freight building, at Lytton, B.C., for Canadian Pacific Railway.
do	do 7,692.....	do	do 6, 1884	Erect a combined passenger and freight building, at Ashcroft, B.C., for Canadian Pacific Railway.
do	do 7,693.....	J. P. Bacon	do 20, 1884	Erect 9 water tanks between Emory's Bar and Savona's Ferry, B.C., for Canadian Pacific Railway.
do	do 7,811.....	A. Onderdonk	May 9, 1885	Erect a combined passenger and freight building, at North Bend, Chinaman's Ranch, and at Penticton, B.C.
do	do 7,814.....	H. Wrightson & Co.	June 17, 1885	Supply 212 iron piles for Canadian Pacific Railway wharf, at Port Moody, B.C., say 500 tons.
do	do 7,824.....	Wilson & McCready	do 13, 1885	Build a 10-stall engine house, at North Bend, B.C., for Canadian Pacific Railway.
Prince Edward Island Railway ..	do 7,771.....	Rhymney Iron Co. (Limited)	Mar. 5, 1885	Supply 400 tons steel flange rails, 50 lbs. per yard, with necessary steel angle fish plates, and iron bolts and nuts, for Prince Edward Island Railway, delivered at Charlottetown, P.E.I.
do	do 7,800.....	Intercolonial Coal Mining Co	May 19, 1885	Supply 6,500 tons coal for Prince Edward Island Railway, delivered on railway wharves, Prince Edward Island.
Intercolonial Railway	do 7,469.....	Warren Taylor	April 22, 1884	Extension of wharf, at Dalhousie, N.B., for Intercolonial Railway.
do	do 7,578.....	James Crossen.....	do 22, 1884	Build 400 coal cars and 1 baggage car for Intercolonial Railway, delivered at Chaudiere Junction.
do	do 7,580.....	J. Harris & Co.....	July 31, 1884	Build 12 box and 56 platform cars for Intercolonial Railway, delivered at St John, N.B.
do	do 7,582.....	do	do 31, 1884	Build 1 2nd class passenger car for Intercolonial Railway, delivered at St. John, N.B.
do	do 7,606.....	Ontario Car Co.....	Aug. 26, 1884	Build 50 coal cars for Intercolonial Railway, delivered at Chaudiere Junction, free on track.

No.	Date	Name of Company or Person	Description of Work
do	do	St. Lawrence Steam Navigation Co.	Steamboat "Content" to convey mails and passengers between Rimouski wharf and British mail steamer.
do	7,610....	Robert Mitchell & Co.	Heating apparatus in passenger station, Intercolonial Railway, St. John, N.B.
do	7,613....	Thomas Giles	Removal of observatory hill in Her Majesty's dockyard, Halifax, and depositing material on intercolonial railway lands.
do	7,615....	D. Roy et frère	Build passenger station at Hurlburg Junction, Intercolonial Railway.
do	7,617....	John F. Teed	Build passenger station at Mount Uniacke, Windsor Branch, Intercolonial Railway.
do	7,619....	Nesbitt & Auger	Build freight shed at Lévis, P.Q., Intercolonial Railway.
do	7,623....	J. B. Snowball	Build Indian Station Branch, Intercolonial Railway, from Derby Station to Indian town, along north shore of South-West Miramichi River, 13½ miles.
do	Deed No. 7,626....	The Starr Manufacturing Co. (Limited)	Build swing bridge over Narrows at Halifax for Intercolonial Railway.
do	7,628....	The Blanford Co. (Limited)	Supply 1,800 tons steel rails (67 lbs per yard) and fastenings for Intercolonial Railway, delivered at Halifax.
do	7,677....	E. Chanteloup	Heating apparatus in Hadlow engine house Intercolonial Railway.
do	7,679....	Wm. Starkey & Co.	Erect 5 frost proof water tanks (56,000 gallons) for Intercolonial Railway, where directed.
do	7,681....	A. Grant	Erect a freight shed at St. Octave, P.Q., for Intercolonial Railway.
do	7,683....	do	Erect a station at St. Moise, P.Q., for Intercolonial Railway.
do	7,695....	Carrier, Laine & Co.	Erect 2 iron turntables for Intercolonial Railway.
do	7,721....	Rhodes, Curry & Co.	Build a hay shed at Richmond, N.S., for Intercolonial Railway.
do	7,732....	Oakes & Paw	Grading Dartmouth Branch, Intercolonial Railway, to Black Rock Point and from Narrows to Sugar Refinery Woodside, if ordered by Minister.
do	7,744....	Edouard Fontaine	Transshipping freight at Chaudière Junction, Intercolonial Railway.
do	7,745....	Rhodes, Curry & Co.	Build general offices for Intercolonial Railway at Moncton, N.S.
do	7,746....	do	Build headhouse of passenger station Intercolonial Railway, at St. John, N.B.
do	7,747....	M. J. Hogan	Fill the Pond at Point Lévis, for Intercolonial Railway, (100,000 cubic yards).
do	7,748....	do	Pile and trestle bridge, Narrows Halifax Harbour, N.S., for Intercolonial Railway.
do	7,750....	Rhodes, Curry & Co.	Build a number of closets for Intercolonial Railway.
do	7,762....	Ebbw Vale Steel, Iron, and Coal Co. (Limited)..	Supply 2,000 tons steel flange rails, of 67 lbs. per yards and 200 tons steel flange rails, of 56 lbs. per yards for Intercolonial Railway.

STATEMENT of Contracts entered into between 1st July, 1884, and 30th June, 1885.—Continued.

Railways and Canals.	Deed, Letter or otherwise under which contract was made.	Name of Contractor.	Date of Contract.	General Description.
Intercolonial Railway....	do 7,763....	Moss Bay Hematite Iron and Steel Co (Limited).....	Feb. 20, 1885	Supply 2,000 tons steel flange rails, of 67 lbs. per yard for Intercolonial Railway.
do	do 7,770....	Ebbw Vale, Steel, Iron and Coal Co. (Limited).....	March 10, 1885	Supply 230 tons steel angle fish plates and 7 tons plain steel fish plates and 32 tons bolts and nuts, $\frac{1}{4}$ and $\frac{3}{4}$ inch, delivered f o b, Liverpool, Barrow or Workington, for intercolonial Railway.
do	do 7,805....	James Harris & Co	May 16, 1885	Build 300 six-ton coal cars for Intercolonial Railway.
do	do 7,810....	Truro Foundry and Machine Co.....	May 2, 1885	Build an old U rail bowstring bridge at McLean's Corner $2\frac{1}{2}$ miles north of London Terry Station, Intercolonial Railway.
do	do 7,821....	Smith & McPhail	May 11, 1885	Interchange of freight at Pointe du Chêne, Shediac, and between it and Buctouche, N.B., re Intercolonial Railway.
do	do 7,822....	Arcade Lemieux.....	May 9, 1885	Transshipping freight at Chaudière Junction, Intercolonial Railway.
do	do 7,832....	John F. Teed.....	May 27, 1885	Build a combined passenger station and freight house at Indian town on Derby Branch Intercolonial Railway.
do	do 7,833....	do	do 1885	Build a combined passenger station and freight house at Millerston on Derby Branch, Intercolonial Railway.
do	Deed No. 7,836....	John Blagdon & Son	May 14, 1885	Repair wharf No. 1 at Richmond, Halifax, N.S., for Intercolonial Railway.
do	do 7,845....	Steel Co. of Canada (limited)	June 30, 1885	Supply 400 chilled cast-iron car wheels, delivered free of all charges on cars at Londonderry Station of Intercolonial Railway, guaranteed for three years.
do	do 7,862....	Alfred Steeres	May 29, 1885	Wire fencing along Intercolonial railway, between Hampton and St. John, 2,100 lineal rods.
do	do 7,863....	J. B. Calhoun.....	do 29, 1885	Wire fencing along Intercolonial Railway, between Point du Chêne and Paines Junction, 640 lineal rods.
do	do 7,864....	T. H. Wilson	June 1, 1885	Wire fencing along Intercolonial Railway, between Moncton and Sussex, 1,200 lineal rods, and between Apohaqui and Hampton, 800 lineal rods.
do	do 7,865....	do	do 16, 1885	Wire fencing along Intercolonial Railway, between Sussex and Apohaqui, 480 lineal rods.
do	do 7,866....	A. K. Thomson.....	do 8, 1885	Wire fencing along Intercolonial Railway, between Dalhousie Junction and Campbellton, 271 lineal rods.

do	do	7,867.....	E. R. Bucknam.....	do	3, 1885	Wire fencing along Intercolonial Railway, between Tar- tague and Little Metis, 960 lineal rods.
do	do	7,868	Wm. Howell	do	3, 1885	Wire fencing along Intercolonial Railway, between Coal Branch and Kent Junction, 900 lineal rods.
do	do	7,870.....	A. McIntosh	do	3, 1885	Wire fencing along Intercolonial Railway, between Canaan and Coal Branch, 800 lineal rods.
do	do	7,871.....	Jas O. Fish	do	5, 1885	Wire fencing along Intercolonial Railway, between Bar- naby River and Bartibogue, 1,400 lineal rods.
do	do	7,872.....	O Mignault	do	11, 1885	Wire fencing along Intercolonial Railway, between Can- sapsac and Sayabec, 1,600 lineal rods.
do	do	7,873.....	Archd. Ferguson	do	11, 1885	Wire fencing along Intercolonial Railway, between Kent Junction and Barnaby River, 1,400 lineal rods.
do	do	7,877.....	Wm. Ferguson.....	do	3, 1885	Wire fencing along Intercolonial Railway, between Berry's Mills and Canaan, 438 lineal rods.
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between Red River and Bathurst, Petite Roche and Jacquet River, 963 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between Ste. Flavie and R-mouski, 640 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between Ri- mouski and Hadlow, 1,600 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
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do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
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do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
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do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along Intercolonial Railway, between St. Charles Junction and Lévis, 3,634 lineal rods.	
do	do	7,878.....	Gray & Wheaton.....	May 29, 1885	Wire fencing along	

STATEMENT of Contracts entered into between 1st July, 1884, and 30th June, 1885.—*Concluded.*

Railways and Canals.	Deed, Letter or otherwise under which contract was made.	Name of Contractor.	Date of Contract.	General Description.
St. Louis, Richibucto and Buc- touche Railway Co.....	do 7,772.	St. Louis, Richibucto and Buctouche Railway Co.....	May 5, 1885	Subsidy agreement—Richibucto to St. Louis, 7 miles.
Albert Southern Railway Co.....	do 7,804.....	Albert Southern Railway Co	do 23, 1885	Subsidy agreement—Hopewell Corner (or Albert) to mouth of river Salmon, in parish of Alma, N.B.
Elgin, Petitcodiac and Havelock Railway Co....	do 7,808.....	Elgin, Petitcodiac and Have- lock Railway Co.....	do 25, 1885	Subsidy agreement—line from Intercolonial Railway, at Petitcodiac, to Havelock Corner, N.B.

APPENDIX No. 17.

GENERAL STATEMENT SHOWING :

- 1st. Water Power and other Public Property leased on Canals and Railways during the Fiscal Year ending 30th June, 1885.
- 2nd. Property purchased or damaged by the Department of Railways and Canals, for the Dominion Railways or Canals ; and Property sold by the same Departments, as not being required for said Railways or Canals, during the Fiscal Year ending 30th June, 1885.
- 3rd. Agreements respecting Subsidies granted by the Dominion Government to aid in the Construction of Railways entered into by certain Railway Companies with the Minister of Railways and Canals, during the Fiscal Year ending 30th June, 1885.

GENERAL STATE

1st. Water Power and other Public Property leased on Canals

Date of Signature.	Terms of Lease.	Lessees.	Property Leased.	For what purpose used.
<i>Beauharnois Canal.</i>				
Oct. 20, 1884	Pleasure of the Government.	Canada Mutual Telegraph Co.	Place poles south side of Canal, 2 miles, Valleyfield.	Telegraph line...
do 24, 1884	do ...	S. A. Bradeur.....	Lot N.E. $\frac{1}{4}$ 21, 1st Con. Catherines-town, above head of Canal, Valleyfield.	Farming.....
do 1, 1885	do ...	Joseph Cardinal.....	Lots 116 and 101, north of Canal, Ste. Oecile, Valleyfield.	Tilling.....
July 21, 1885	do ...	O. Trempe.....	Lot 1, above Guard Lock, north of Canal, Ste. Oecile, Valleyfield.	Wharf and coal shed.
April 11, 1885	do ...	Canada Atlantic Railway Co.	Iron swing bridge over Canal, Ste. Oecile, Valleyfield.	Railway and bridge.
June 25, 1885	do ...	Moise Julien.....	Wharf lot, 200 ft. above St. Timotheé Bridge, south of Canal.	Wharf and store.
<i>Lachine Canal.</i>				
Oct. 18, 1884	do ...	Dominion Bridge Co. (Limited).	To lay a 7-in. pipe from Canal, north side, to their works, 1,000 ft. below Guard Lock, Lachine	For boiler and machinery.
Dec. 23, 1884	do ...	Anderson, McKenzie & Co. and A. Hurteau & Bro.	Winterage dues for lumber piled on Wharf of Wellington Basin.	Piling lumber....
May 2, 1885	do ...	St. Lawrence Sugar Refining Co.	Water through 24 in. pipe from Basin No. 2, <i>via</i> Queen street, Montreal, to their factory.	Water supply....
do 8, 1885	do ...	G. E. Jacques & Co.	Lot on Colborne street, Montreal, N.W. of Basin No. 2, near Flour Sheds Nos. 4 and 5	Office.
Aug. 28, 1885	do ...	Canada Sugar Refining Co.	Shed No. 1, St. Gabriel Basin	Storage of sugar.
<i>Rideau Canal.</i>				
June 11, 1885	do ...	B. E. & J. F. Chaffey	Part of lot 17, in 8th Con. South Crosby, at Chaffey's Lock.	Grist mill.....
do 17, 1885	do ...	Ottawa Canoe Club.	Part lot at foot of Canal, at Ottawa, in River.	Boat house.....

MENT SHOWING

and Railways, during the Fiscal Year ended 30th June, 1885.

Amount of Water Power Leased.	Area of Property Leased.	Date from which Lease is reckoned.	Annual Rental.	Terms of Payment.			Remarks.
				Amount of each Instalment.	When Payable each Year.	When first Instalment was Payable	
			\$ cts.	\$ cts.			
.....	.....	Oct. 20, 1884	1 00	1 00	Oct. 1....	On delivery of lease.	In advance.
.....	10 arpts 15 $\frac{1}{2}$ perches.	do 1, 1884	8 00	8 00	do 1....	do ...	do
.....	3 acres.....	June 1, 1883	20 00	20 00	June 1....	do ...	do
.....	150 x 100 feet.	Sept. 1, 1883	40 00	40 00	Sept. 1....	do ...	do
.....	.....	April 11, 1885	1 00	1 00	April 1....	do ...	Terminal on 6 mos. notice from either party.
.....	150 x 70 ft.	June 1, 1885	20 00	20 00	June 1....	do ...	In advance.
7-inch pipe.	.....	July 1, 1884	50 00	50 00	July 1....	do ...	do
.....	{ 170 piles at \$1.00 33 do 1.00		170 00 33 00	}	.....	do ...	do
24-inch pipe.	.....	July 1, 1885	750 00	375 00	Jan. 1 and July 1.	do ...	This supersedes lease of July 22nd, 1879.
.....	18 x 24 ft..	do 1, 1885	25 00	25 00	July 1....	do ...	In advance.
.....	.....	Aug. 1, 1885	1200 00	100 00 per month.	1st of each month.	do ...	do
Surplus water to pass through flume.	3 rods 18 perches.	July 1, 1883	5 00	5 00	July 1....	July 1, 1883	This supersedes lease of July 5th, 1884. In advance.
.....	.....	June 1, 1885	1 00	1 00	June 1....	On delivery of lease.	In advance.

GENERAL STATEMENT showing: 1st. Water Power and other

Date of Signature.	Terms of Lease.	Lessees.	Property Leased.	For what purpose used.
			<i>Cornwall Canal.</i>	
			Place poles and wires along this and other Canals.	
			<i>Williamsburg Canals.</i>	
			Place poles and wires along this and other Canals.	
			<i>Welland Canal.</i>	
June 10, 1885	Pleasure of the Government.	Bell Telephone Co. of Canada.	Place poles and wires along this and other Canals.	Telephone.....
			<i>Chambly Canal.</i>	
			Place poles and wires along this and other Canals.	
			<i>Ste. Anne's Canal.</i>	
			Place poles and wires along this and other Canals.	
			<i>Intercolonial Railway.</i>	
May 6, 1885	10 years.....	Central Vermont R'y Co. to Government	Rooms in building on official lot No. 148, south-east side of St. James street, Montreal.	Gov't. Agent's Office.
do 6, 1885	do	do ...	Company to heat, repair and alter same.	do ..
Dec. 31, 1884	1 year.....	Chas. A. Demers.....	License to sell books, etc., at Lévis Station, in News Room.	Books, news papers, etc.
July 1, 1885	do	Jos. Fortin.	License to sell books, etc., on trains between Lévis and Campbellton.	do ..
do 1, 1885	do	Canadian Railway News Co.	License to sell books, etc., on trains between Halifax, Campbellton, St. John and Pointe du Chêne.	do ..

Public Property leased on Canals and Railways, etc.—*Continued.*

Amount of Water Power Leased.	Area of Property Leased.	Date from which Lease is reckoned.	Annual Rental.	Terms of Payment.			Remarks.
				Amount of each Instalment.	When Payable each Year.	When first Instalment was Payable	
			\$ cts.	\$ cts	\$ cts.		
.....	June 10, 1885	1 00	1 00	June 1 ...	On delivery of lease.	All in one lease. In advance.
.....	May 1, 1883	600 00	50 00	1st of each month.	do	
.....	do 1, 1883	200 00	50 00	Quarterly.		
.....	Dec. 31, 1884	50 00	25 00	Dec. 31 & June 30.	On delivery of lease.	Terminable on one month's notice. In advance.
.....	July 1, 1885	400 00	33 34	Monthly...	July 1, 1885.	In advance.
.....	do 1, 1885	1100 00	91 67	do ...	do 1, 1885.	do

2nd. Property purchased by the Department of Railways and Canals, or damaged, and property sold by the same Department, as not being required for the Railways or Canals of the Dominion, during the Fiscal Year ended 30th June, 1885.

Date of Signature.	Vendors, &c	Purchasers.	Property Purchased, or Sold, or Damaged.	For what Purpose used, &c.	Area of Land.	Amount Paid.	Remarks.
			<i>Carillon Canal.</i>			\$ cts.	
Jan. 24, 1885	John M. Kirby	Her Majesty.	Release for damages, flooding lot 15, 1st Con.	Carillon Dam	2 acres	200 00	
Feb. 20, 1885	D. B. Wyman	do ..	do lot 16 do ..	do	do	50 00	
June 22, 1884	J. B. & O. Brazeau ..	do ..	do E. pt. 20, Block C., 1st Con. Chatham	do	do	50 00	
Nov. 25, 1881	S. Webster	do ..	do lot 25 do ..	do	do	40 00	
Jan. 8, 1885	John Fitzgerald, sen	do ..	do 3 & read on 7 do ..	do	do	275 00	
do 14, 1885	James Miller	do ..	do 5 do 1 do ..	do	do	25 00	
do 14, 1885	Geo. O'Brien	do ..	do 7 do 1 do ..	do	do	20 00	
do 29, 1885	Jos. Fletcher	do ..	do 3 do ..	do	do	25 00	
do 29, 1885	J. Cushing <i>et al</i> , Trustees Congregation Presbyterian Church, Chatham.	do ..	do W $\frac{1}{2}$ 6 do ..	do	do	20 00	
May 1, 1885	Kane & Mularky ...	do ..	<i>Chambly Canal.</i>	Chambly Canal		150 00	
			Release fences and maintenance on lot 13, or official lot 4, 338, Parish of Chambly				
July 24, 1884	A. L. & A. F. Bradley	Her Majesty	<i>Welland Canal.</i>	Welland Canal		275 00	
Aug. 6, 1884	Aaron Wiggins.	do ..	Release of damages by drain flooding lot 5 in 10th Con. Grantham	do		150 00	
Sept. 8, 1884	John Cloy (owner) ..	do ..	Release of damages by flood, removal of bridges, lot 74, Thorold	do		100 00	
do 9, 1884	Howland, Jones & Co. (tenants)	do ..	Release of damages, flooding his buildings by railway, west side, Thorold	do		275 84	
do 20, 1884	Estate Mich. Smith...	do ..	Release of damages, flooding flour in building by railway, west side, Thorold	do		150 00	
Nov. 27, 1884	Chas. Lugsdin (tenant)	do ..	Release of damages to lot L, east of East St., Port Colborne	do		200 00	
			Release of damages to shop on lot 23, west of West St., Port Colborne	do			

2nd. PROPERTY purchased, or damaged, or sold by the Department of Railways and Canals, &c.—Continued.

Date of Signature.	Vendors, &c.	Purchasers.	Property Purchased, or Damaged, or Sold.	For what purpose used, &c.	Area of Land.	Amount Paid.	Remarks.
<i>Trent Valley Canal—Continued.</i>							
Sept. 17, 1884	A. Fairbairn.	do	Release for damages by Lakefield dam to Park lot 1, N. of George St., Lakefield Village.	do	.....	\$ cts.	
do 13, 1884	J. C. Sherin.	do	Release for damages by Lakefield dam to Park lot 2, N. of George St., Lakefield Village.	do	.....	100 00	
Oct. 31, 1884	A. J. Wright <i>et ux.</i> ...	do	Release for damages by Lovesick Rapids dam to lot 9, in 6th Con., and lot 10, in 7th Con. Harvey.	do	.....	100 00	
Nov. 20, 1884	H. Grundy <i>et ux.</i>	Her Majesty.	Release for damages by Lakefield dam to lot 24, N. of Smith St., Lakefield Village, or part 27, in 8th Con. Smith.	Trent Valley Canal	.....	250 00	
Dec. 20, 1884	R. White (owner)....	do	Release for damages by Lakefield dam to E½ 34, in 11th Con. Smith.	do	.....	200 00	
Aug. 30, 1884	J. McGraw (tenant of a life interest)	do	Release for damages by Lakefield dam to E½ 34, in 11th Con. Smith.	do	.....	40 00	
Nov. 27, 1884	J. Orickmore.	do	Release for damages by Lakefield dam to W½ 18, in 7th Con. Douro.	do	.....	300 00	
Dec. 27, 1884	Trustees of R. & C. Strickland.	do	Release for damages by Lakefield dam to W½ 18, in 7th Con. Douro.	do	.....	1 00	
do 9, 1884	Trustees of J. P. & S. S. Strickland.	do	Release for damages by Lakefield dam to lot 6, S. of George St., lot 9, N. of Smith St., blocks U and B, all in Lakefield Village.	do	.....	400 00	
Apl. 22, 1885	Jes. Preston (widow)	do	Release for damages by Lakefield dam to S½ of N½ lot 26, in 8th Con. Smith.	do	.....	100 00	
Dec. 24, 1884	Kath, Strickland <i>et al.</i>	do	Release for damages by Lakefield dam to broken lots 18, in 7th Con., and 18, in 18th Con. Douro.	do	.....	500 00	
May 12, 1885	Eliz. Chalmers <i>et vir.</i>	do	Release for damages by Lakefield dam to lot 26, in 4th Con. Douro.	do	.....	250 00	
Sept. 4, 1885	H. L. Lefebvre.	do	Release for damages by Lakefield dam to boat house on lot 19, in 7th Con. Douro.	do	.....	25 00	
<i>Ottawa River—Damages by Dams at Rocher Fenou and Grand Calumet Falls.</i>							
Oct. 30, 1884	Geo. Carswell.	do	Release, damages to lots 25 and 26, Grand Calumet.	Culbute Works.	40 acres.	800 00	
Nov. 7, 1884	W. O. & T. Spencer <i>et al.</i> 1884	do	do lot 20, in 5th Con. Calumet Island.	do	16 do.	80 00	

do 13, 1884	Thos. McVeigh	do	pt. $\frac{1}{2}$ 26, and pt. $\frac{1}{2}$ 27, 5th Con. Calumet Island	do	16 do	80 00
Jan. 12, 1885	H. & F. & F. Rose <i>et al.</i>	do	pt. $\frac{1}{2}$ 4, Mansfield	do	9 $\frac{1}{4}$ do	100 00
Nov. 17, 1884	Archd. Spencer	do	lots 2 and 3, Range B, Mansfield	do	18 $\frac{1}{2}$ do	80 00
Dec. 4, 1884	M. Dempsey	do	lots 6 and 7, 1st Range, Mansfield	do	55 $\frac{1}{2}$ do	575 00
Feb. 7, 1885	O. Dumouchel	do	lots 13, 14, North Range, Grand Calumet	do	.....	500 00
do 9, 1885	W. Rimer	do	lot 6, S. of Front St., Village of Bryson	do	.....	75 00
do 10, 1885	John McCosher	do	lot 11, N. of Front St., Village of Bryson	do	.....	15 00
Mar. 2, 1885	Pat. Davis	do	lot 5, in 1st Range, Mansfield	do	.....	225 00
May 26, 1885	Geo. Carswell (assig- nee of Jos. Malo)	do	lots 17, 18, North Range, Calumet Island	do	.....	400 00
<i>Cornwall Canal.</i>						
May 13, 1885	M. Ryan <i>et ux</i>	do	Deed of pt of lot E $\frac{1}{2}$ 3, in 1st Con. Osnabrock	Cornwall Canal ...	0 \cdot 5 acres ...	225 00
July 3, 1885	Wm. J. Brown <i>et ux.</i>	do	do do do do	do	1 \cdot 08 do ...	434 00
do 3, 1885	Alex. Serviss	do	{ do E $\frac{1}{2}$ 6, in } land taken	do	1 \cdot 19 do ...	297 50
			{ 1st Con. Osnabrock.... } land damaged	do	.....	27 50
<i>Intercolonial Railway.</i>						
Nov. 1, 1884	Eliz. Russell	Her Majesty	Deed to Government part lot 331, Parish of Durham, N.B., for right of way	Intercolonial Ry...	0 \cdot 81 acres	36 00
Feb. 19, 1885	Mayor, Aldermen and Commonalty of St John City, N.B. ...	do	Agreement re division of Smythe Street, St John, N.B.	do	.....	.....
Sept 10, 1883	Commissioner for executing the office of Lord High Admiral	do	Deed to Government of land, and land covered with water on east side of Upper Water, St, Halifax, near H.M.'s dock yard, for wharf and Intercolonial Railway terminus, on Halifax Harbor	do	4 \cdot 065 acres	1 00
						\$ cts.
						And release, 30 th July, 1885.
						Release, 27 th July, 1885.

2nd. PROPERTY Purchased, or Damaged, or Sold by the Department of Railways and Canals, &c.—Continued.

Date of Signature.	Vendors, &c.	Purchasers.	Property Purchased, Sold or Damaged.	For what purpose used, &c.	Area of Land.	Amount Paid.	Remarks.
<i>Canadian Pacific Railway.</i>							
Feb. 3, 1885	James Park.....	Her Majesty.	Deed of lot 283, St. Andrews, outer 2 miles, Canadian Pacific Railway....	Can. Pac. Railway	1.02 acres	\$ 40 00	
Mar. 31, 1885	Jas. Isbester.....	do	do	do	3.25 do	1 00	
Jan. 3, 1885	Rev. S. Pritchard....	do	5 (Dom. Gov. Survey) Kildonan	do	2.07 do	1 00	
do 8, 1885	John Bruce.....	do	36, outer 2 miles, St. John.....	do	0.93 do	1 00	
do 14, 1885	Ann, wife of C. Isbester.....	do	40 (Dom. Gov. Survey) Kildonan	do			
do 16, 1885	Janet Polson.....	do	N $\frac{1}{2}$ 6, Kildonan.....	do	2.68 do	26 80	
do 9, 1885	John Polson.....	do	10 (Dom. Gov. Survey) Kildonan	do	0.44 do	1 00	
Feb. 26, 1885	A. G. Irwin.....	do	W $\frac{1}{2}$ of SE $\frac{1}{4}$ sec. 36, Tp. 11, R. 2 E	do	5.77 do	57 70	
do 3, 1885	J. S. Atkins.....	do	NE $\frac{1}{4}$ do 36 do	do	0.24 do	1 00	
do 21, 1885	Jos. Robinson.....	do	NE $\frac{1}{4}$ do 3, Tp. 13, R. 2 E	do	17.46 do	1 00	
do 19, 1885	Robt. Sproule.....	do	do NE $\frac{1}{4}$ do 30 do	do	2.29 do	1 00	
May 26, 1885	Her Majesty.....	Peter Fink..	do SW $\frac{1}{4}$ do 30 do	do	7.27 do	1 00	
			Deed to him of part of lot 2, group 1, Yale, Lytton District.....	Not required for C.P.R.....	10.00 do	252 10	Fink has sold to Govt. 119 acres of same lot for \$3,000 by deed of 15th Dec., 1883, for station purposes.
Jan. 10, 1885	L. S. Vaughan.....	Her Majesty	Release, for taking and leaving sub-lots in lot 65, St. Clements.....	do		400 00	
do 23, 1885	Wm. Wagner.....	do	Release, for taking and leaving W $\frac{1}{2}$ Secs. 27 and 28, Tp. 13, R. 4 W.....	do		608 00	St. newall Branch
Aug. 2, 1883	Sarah, wife of D Gunn, formerly Mrs. H. Bird.....	do	Deed to Government lot 206, St. Andrews.... NE $\frac{1}{4}$ Sec. 11, Tp. 13, R. 2 E.....	Pembina Br., C.P.R	0.76 acres	22 00	{ Interest from 14th October, 1882.
Mar. 19, 1885	Jas. Isbester <i>et al</i>	do	do	Stonewall do	5.01 do	762 25	

DATE PAID, 1885.	NAME OF VENDOR OF LAND.	ACRES.	REMARKS.	AMOUNT PAID.	DATE PAID.	REMARKS.	AMOUNT PAID.
do 28, 1881	G. A. Allen and D. Campbell	do	do	2 61	do	Pembina	33 41
Nov. 4, 1884	Henry Fry, jun.	do	Bond of indemnity to Government re lost cheque, if claimed	do	do	Can. Pac. Railway	56 60
July 25, 1883	J. B. Lagimonière	do	Deed of lot 74, St. Boniface	1 28	acres	Pembina Br., C.P.R.	56 50
do 25, 1883	E. Lagimonière	do	do	1 29	do	do	56 50

3rd.—AGREEMENTS respecting Subsidies granted by the Dominion Government to
with the Minister of Railways and Canals, during

Date of Signature.	Name of Railway Company.	Line of Railway to be Constructed.	Acts of Canada granting Subsidy.	Amount of Subsidy.	
				Per mile.	Not ex- ceeding in the whole
				\$	\$
Dec. 24, 1884	Northern and West- ern Railway Co.	From Fredericton to Miramichi River.	47 Vic., c. 8.	3,200	128,000
do 22, 1884	Pontiac Pacific Junc- tion Railway Co.	From Hull or Aylmer to Pembroke, crossing Ottawa River at a point not east of Lapasse.	do ...	3,200	272,000
Jan. 20, 1885	Caraquet Rail way Co.	From Caraquet to Bathurst, N.B.	46 Vic., c. 25.	3,200	115,200
do 20, 1885	do	From Caraquet to Shippegan Harbor, N.B.	47 Vic., c. 8.	3,200	76,800
Feb. 14, 1885	Great Northern Rail- way Co.	From St. Jérôme to New Glasgow, Que.	do ...	3,200	32,000
Mar. 5, 1885	Kingston and Pem- broke Railway Co.	From a point 15 miles south of Renfrew and between the Mississippi and Renfrew to Renfrew.	do ...	3,200	48,000
May 5, 1885	St. Louis, Richibucto and Buctouche Railway Co.	From Richibucto to St. Louis, County of Kent, N.B.	do ...	3,200	22,400
do 23, 1885	Albert Southern Rail- way Co.	From Hopewell Corner (now called Albert) to mouth of Salmon River, Parish of Alma, N.B.	do ...	3,200	51,200
do 25, 1885	Elgin Petitcodiac and Havelock Rail- way Co.	From Intercolonial Railway, at Petit- codiac, to Havelock Corner, N.B.	46 Vic., c. 25.	3,200	38,400

aid in the construction of Railways, entered into by certain Railway Companies the Fiscal Year ending 30th June, 1885.

No. of miles to be subsidized.	Maximum Grade:— Feet to the mile.	Radius of Curvature, not less than— Feet	Width of Clearing, each side. Ft.	Width of Cuttings. Ft.	Embankments. Feet.	Rails.		Line to be completed.	Remarks.
						If steel. Lbs	If iron. Lbs		
40	70	955	50	20	16	56	60	July 1, 1888.	
85	53	1,433	50	22	16	56	.....	Sept. 1, 1885—27 miles from Aylmer; July 1, 1886—27 miles following; July 1, 1887—whole line.	Government to retain \$28,000 to meet established liabilities of Company.
36 24	60	1,000	50	20	16	50	56	May 25, 1887. July 1, 1888.	
10						56	.....	July 1, 1885.....	
15	*	6° or 955 feet.	50	18	15 or more.	56	56	March 5, 1886.	Government to retain \$5,000 to meet liabilities.
7	45	1,000	50	20	16	56	.....	Dec. 31, 1885.	
16	120	6° or 955 feet.	50	20	16	56	.....	July 1, 1887.	
12	70	955ft. except at Junction of Intercolonial Ry. where it may be 637ft.	50	20	15	50	.....	Oct. 1, 1886.....	Culverts 10 in. square cedar; piers of cedar; crib-work filled with stone.

*On 6° curves (rad. 955), rising southerly (against the load), 60 feet per mile.

On curves of larger radii to maximum on tangent (against the load), 79 feet per mile.

On 6° curves rising northerly (favourable to load), 79 feet per mile.

On curves of larger radii to maximum on tangent (favourable to load), 100 feet per mile.

APPENDIX No. 19.

STATEMENT of Claims reported or awarded on by the Official Arbitrators in connection with the Department of Railways and Canals during the Fiscal Year ended 30th June, 1885.

Claimants.	Nature of Claims.	When Referred.	To whom referred.	Whether for Award or Report.	Amount claimed.	Amount Awarded or Recommended.	Date of Award or Report.	Remarks.
Amable St. Laurent...	I.C.R.—Five sheep killed.....	April 19.....	One arbitrator.	Report..	\$ cts. 12 00	\$ cts 12 00	May 12, 1885	
J. B. Plante.....	I.C.R.—St. Charles Branch — Two horses killed.	Feb. 1, 1883	do ..	do ..	150 00	Nil.	July 3, 1884	
A. J. White.....	I.C.R.—Damage to land through flooding from.	June 8, 1885	Full Board....	do ..	150 00	Nil.	Aug. 4, 1884	Referred to full Board for award.
C. L. S. Vaughan.....	C.P.R.—Land expropriated but not used for.	.....	do	do ..	Not stated	400 00	Sept. 15, 1884	
J. W. Nelson.....	C.P.R.—Land taken for the Pembina Branch.	July 13, 1885	do	do ..	do ..	100 00	do 15, 1884	
Geo. Kitchen.....	I.C.R.—Ties used and not paid for....	Feb. 27, 1883	One arbitrator	do ..	700 00	Nil.	Oct. 1, 1884	
Jos. Pouliot.....	I.C.R.—Damage to land by flooding.	Nov. 6, 1883	do	do ..	448 00	450 00	Nov. 7, 1884	Referred to full Board.
Stanislas Meunier and — Hardy	St. Ours Dam—Damage by flooding...	Oct. 16, 1882	do	do ..	Not stated	Nil.	do 7, 1884	
Major-Gen. Laurie.....	C.R.—Horse killed by.....	Feb. 23, 1884	do	do ..	200 00	200 00	Mar. 25, 1885	
Daniel Pugsley.....	I.C.R.—Damage by fire to a barn....	.....	do	do ..	.....	.....	.....
Sylvester Neelon	Welland Canal—Damage to propeller "Europa," and counter claim.	Mar. 30, 1885	Full Board	do ..	Not stated	Nil.	May 12, 1885	Both cases being dismissed, or nothing reported in favor of claimants.
Mrs. Chas. Langelier...	Chambly Canal—For maintenance of a bridge over.	June 13, 1884	One arbitrator.	do ..	365 00	300 00	do 29, 1885	
H. Riendeau.....	Chambly Canal—Damage by water...	April 16, 1884	do ..	do ..	300 00	per year Nil.	June 2, 1885	But recommending to give a parcel of land to claimant which is useless to Govt.
J. B. Robertson.	I.C.R.—Damage to machinery caused by removal for the purpose of.	May 21, 1884	do ..	do ..	Not stated	Nil.	Jan. 1, 1885	
Wm. Wagner.....	C.P.R.—Land taken for and damages	July 16, 1883	Two arbitrators	Award..	3,769 56	608 00	Sept. 11, 1884	
James Park.....	do do	June 11, 1884	do ..	do ..	40 00	40 00	do 11, 1884	
Andrew Hepburn.....	do do	do 11, 1884	do ..	do ..	60 00	60 00	do 11, 1884	

James Isbester.....	do do do	May 21, 1884	do	...	762 25	do 11, 1884
W. W. Doherty.....	I.C.R.—Damage by diverting his water for the use of.	April 7, 1884	Full Board.....	do	650 00	Dec. 10, 1884
Chas. Gallagher.....	I.C.R.—Damage for a horse killed by.	Sept. 29, 1883	do	do	100 00	do 10, 1884
Robt. Cochrane.....	I.C.R.—Damage to ship material by fire from engine.	April 17, 1884	do	do	1,341 00	do 16, 1884
Peter Jackson <i>et al.</i>	Lachine Canal—Damage to property through.	Sept 5, 1884	do	do	Nil.	do 10, 1884
W. Charland.....	I.C.R.—St. Charles Branch — Land taken for and damage.	Aug. 2, 1883	do	do	37,273 00	May 16, 1885
John Hosekne.....	Welland Canal—Damage to potato crop by flooding.	June 5, 1883	do	do	577 50	do 16, 1885
David Leich <i>et al.</i>	Welland Canal—Injuries received by his son at.	Feb. 23, 1883	do	do	2,000 00	do 16, 1885
H. Hubert.....	Lachine Canal—Damage to land through leakage.	Mar. 27, 1884	do	do	91,097 10	do 18, 1885
Chas. Wilson.....	C.P.R.—Old Portage Leprairie Line — Land taken for gravel.	Oct 9, 1882	do	do	7,262 50	do 11, 1885
J. T. Davie (3 cases)...	I.C.R.—St. Charles Branch — Land taken for and damage	Aug. 2, 1883	do	do	246,488 16	do 20, 1885
Chas. Duquette <i>et al.</i> ...	St. Anné New Lock—Further expenses to get water pending work.	April 8, 1884	do	do	Not stated	do 15, 1885
James McLeod.....	I.C.R.—Damages for two horses killed on.	Feb. 6, 1884	One arbitrator Report...	do	435 00	Dec. 29, 1884
L. Guay.....	Land expropriated for St. Charles Branch.	.....	do	do	{ 150 00	Jan. 16, 1885
A. Guay.....	do	.....	do	do	{ 12 00	do 16, 1885
R. Turgeon.....	do	.....	do	do	{ 4 00	do 16, 1885
R. Roy.....	do	.....	do	do	{ 7 00	do 16, 1885
Andrew McConnell.....	Damage to land by waters of Carillon Canal.	April 3, 1884	do	do	550 00	Aug 23, 1884
					& interest.	

Case now referred to full Board for award. Negotiated for by Mr. Muma, O.A., and approved of by Mr. Schreiber, Jan. 16, 1885.

CHAS. THIBAUT,
Secretary of Official Arbitrators.

OTTAWA, 25th November, 1885.

APPENDIX No. 20.

CANADIAN PACIFIC RAILWAY.

OFFICE OF THE ENGINEER IN CHIEF,

OTTAWA, 31st December, 1885.

SIR,—On the 10th of October last, I had the honor to submit my Annual Report of the progress made with the works of construction upon the Canadian Pacific Railway up to that date, and as it has been the practice to give the latest information in regard to the condition of the works before Parliament meets, I now beg leave to report on the advancement with the works subsequent to that date, and in as much as the rail connection was made from ocean to ocean on the 7th November last, at which date the road may be accepted as practically completed, the moment appears opportune to offer a few remarks upon the progress made with the construction of this stupendous undertaking from the first breaking of ground.

This great enterprise, as is well known, was first undertaken as a Government work and the first contract for the construction of any portion of the Trunk line was entered into on the 3rd of April, 1875, being for the section lying between Fort William and Sunshine Creek, a distance of 27 miles; the work of construction was at once engaged in, and this may be considered the date at which actual construction was commenced and continuously prosecuted. From time to time contracts for further sections were let until the entire distance of 422 miles between Fort William and the Red River, opposite Winnipeg, was covered. Whilst this work was in progress contracts were let for the construction of 200 miles from Winnipeg westward, and of 127 miles in British Columbia, extending from Savona's Ferry to Emory's Bar, thus aggregating 749 miles which were under construction as Government work in May, 1880, the last contract having been entered into on the 3rd of that month.

Shortly after this, negotiations were entered into for the construction by a company, resulting in the Canadian Pacific Railway Company entering into an agreement to construct 1,909 miles and equip the entire Trunk line from Callander to Port Moody, 2,550 miles, assuming the work done west of Winnipeg and paying the cost thereof, in consideration of the Government granting them \$25,000,000 and 25,000,000 acres of land, together with a constructed road composed of 641 miles of Trunk line and the Pembina Branch, 65 miles in length. This contract is dated the 21st of October, 1880, and was ratified by Parliament on the 15th of January, 1881, upon which the company at once set to work to organize a force for carrying on the work.

In May of that year active operations of construction were commenced, when the works west of Winnipeg, which consisted of about 70 miles of graded road and 66 miles of track laid, together with a quantity of rails and other material, were transferred to them.

In February, 1882, the last sub-section of the Government sections, viz., that from Emory's Bar to Port Moody, a distance of 86 miles was placed under contract.

The progress made with the work on the Government sections of the Trunk line, viz.: Port Arthur to Red River (opposite Winnipeg), 428 miles; and Savona's Ferry to Port Moody, 213 miles—in all, 641 miles, at the close of each calendar

year may be stated, as regards the length of road which was so far completed as to admit of the running of regular trains thereon, to be as follows, viz :—

	Each year. Miles.	Total Miles.
During and at the close of 1875.....	0	0
“ “ 1876.....	45	45
“ “ 1877.....	17	62
“ “ 1878.....	136	198
“ “ 1879	35	233
“ “ 1880.....	66	299
“ “ 1881.....	102	401
“ “ 1882.....	49	450
“ “ 1883.....	77	527
“ “ 1884.....	111	638
On the 30th June, 1885.....	3	641

In July, 1885, the sections of the road undertaken as a Government work, 641 miles in length, may be said to have been practically completed.

I have already stated that the Canadian Pacific Railway Company, under contract dated 21st October, 1880, undertook to construct 1,909 miles of Trunk line and to equip the entire road from Callander to Port Moody, 2,550 miles, and that active operations commenced in the month of May following.

The progress made by the Company up to the end of each calendar year, as regards the length of line which was so far completed as to admit of the running of regular trains thereon, may be stated as follows :—

	Each year. Miles.	Total Miles.
During and at the close of 1881.....	161	161
“ “ 1882.....	440	601
“ “ 1883.....	473	1,074
“ “ 1884.....	358	1,432
“ “ 1885.....	477	1,909

Thus the entire 1,909 miles, which the Company undertook to construct, were practically completed on the 7th day of November, 1885, the day on which the last rail was laid, forming a continuous rail connection from ocean to ocean. The company is still operating a temporary section of 9 miles near Mount Stephen, which was constructed for the purpose of avoiding some heavy work, including a tunnel of 1,400 feet, which would have greatly delayed the completion of the through line. This temporary line is in first-rate running condition, and seems to be operated without difficulty.

Exclusive of this nine mile section a small expenditure only is required to place the road in such a condition as to comply with the requirements of the contract.

The entire line is equipped with rolling stock of a high standard.

The 641 miles constructed by the Government were commenced in April, 1875, and practically completed in June, 1885, ten years and three months.

The 1,909 miles constructed by the Company were commenced say, in February, 1881, and practically completed on the 7th of November, 1885, four years and nine months.

The following are statements of the revenue and expenditure for the years ending the 31st of December, 1884 and 1885, published by the Canadian Pacific Railway Company:—

	1884.	1885.
Gross earnings	\$5,750,521	\$8,348,500
Gross expenditure	4,558,630	5,124,400
Net earnings	<u>\$1,191,890</u>	<u>\$3,224,100</u>

These figures give indications of a most successful enterprise and of a most valuable property, especially when it is considered that a large section of the country through which the road passes is at present sparsely settled, and hitherto unserved by railway facilities, with but very limited opportunities for a development of trade, and I think there can be no doubt this section of country will become speedily populated and trade will rapidly develop.

I have the honor to be, Sir,

Your obedient servant,

(Signed)

COLLINGWOOD SCHREIBER,

Chief Engineer.

A. P. BRADLEY, Esq.

Secretary Railways and Canada.

APPENDIX No. 21.

ALPHABETICAL List of Subsidies Granted.

Number.	Name of Railway.	Under what Act subsidized.	Subsidy per mile.	Total Subsidy not to exceed—	Subsidy for a term of years.	Total Subsidy.
			\$	\$	\$	\$
1	Annapolis to Digby	47 Vic, c. 8...	3,200	64,000	.....	64,000
2	Baie des Chaleurs Railway.....	46 Vic, c. 25...	3,200	320,000	.....	320,000
3	Brockville, Westport and Sault Ste. Marie Ry	48 Vic, c. 59...	3,200	128,000	.....	128,000
4	{ Belleville and North Hastings Railway..	48 Vic, c. 59...	1,500	10,500	.....	.....
	{ Madoc to junction with Central Ontario					
	{ at Eldorado					
5	{ Caraquet Railway.....	46 Vic, c. 25...	3,200	115,200	}	192,000
	{ do	47 Vic, c. 8...	3,200	76,800		
6	Central Railway, head of Grand Lake, to					
	Intercolonial Railway at Sussex.....	47 Vic, c. 8...	3,200	128,000	.....	128,000
7	Central Ontario Railway.....	48 Vic, c. 59...	3,200	64,000	.....	.....
8	Canada Southern Ry., Comber to Lake Erie.	48 Vic, c. 59...	3,200	44,800	.....	.....
9	{ Canada Atlantic, Valleyfield to Lacolle }	48 Vic, c. 59...	{ 1,600 }	96,000	.....	.....
	{ do terminus to Chaudière Falls }					
10	Derby to Indian Town.....	47 Vic, c. 8...	10,000	140,000	.....	140,000
11	Erie and Huron Railway.....	47 Vic, c. 8...	3,200	96,000	.....	96,000
12	{ Gravenhurst to Callander	45 Vic, c. 14...	6,000	660,000	}	1,320,000
	{ do do	46 Vic, c. 8...	6,000	660,000		
13	{ Gatineau Valley Railway.....	46 Vic, c. 25...	3,200	160,000	}	320,000
	{ do do	47 Vic, c. 8...	3,200	160,000		
	{ do (Cancel Act 46 and 47 Vic.)	48 Vic, c. 59...	.....	320,000	.....	.....
14	Great European and Short Line Railway,					
	Canso to Louisburg.....	46 Vic, c. 25...	3,200	256,000	.....	256,000
	{ Grand Piles to Lake Edward	47 Vic, c. 8...	3,200	217,600	}	217,600
15	{ Grand Piles, on River St. Laurent, to its	48 Vic, c. 59...	4,352	217,600		
	{ junction with the Lake St. John Rail-					
	way. (Cancel Act of 47 Vic., c. 8.)....					
16	Great Northern Railway (St. Jérôme to New					
	Glasgow).....	47 Vic, c. 8...	3,200	32,000	.....	32,000
17	Hopewell to Alma.....	47 Vic, c. 8...	3,200	51,200	.....	51,200
18	International Ry., Sherbrooke to Boundary.	46 Vic, c. 25...	3,200	156,800	.....	156,800
19	Intercolonial Ry., Petitcodiac to Havelock.	46 Vic, c. 25...	3,200	38,400	.....	38,000
20	Intercolonial Ry. Branch, Metapedia towards					
	Paspebiac.....	47 Vic, c. 8...	15,000	300,000	.....	300,000
21	Irondale, Bancroft and Ottawa Railway.....	47 Vic, c. 8...	3,200	160,000	.....	160,000
22	Indian Town to Boistown, N.B.....	48 Vic, c. 59...	3,200	140,800	.....	.....
23	Jacques Cartier Railway, and bridge connect-					
	ing Union Junction with Canadian					
	Pacific Railway and the North Shore					
	Railway	47 Vic, c. 8...	.....	200,000	.....	200,000
24	Kingston and Pembroke Railway, Mississippi					
	to Renfrew.....	47 Vic, c. 8...	3,200	48,000	.....	48,000
25	Long Sault and Lake Temiscamingue.....	48 Vic, c. 59...	3,200	25,600	.....	.....
26	Montreal and Champlain Junction, Railway,					
	Brousseau to Dundee	48 Vic, c. 59...	500	30,000	.....	.....
	{ Montreal and Halifax, a line of railway	47 Vic, c. 8...	.....	.....	170,000	.....
27	{ connecting.....					
	The Act of 1884, makes the whole loan				for 15	.....
	\$250,000 for 20 years.....	48 Vic, c. 58...	.....	.....	years	.....
					80,000	.....
					for 20	.....
					years.	.....

ALPHABETICAL List of Subsidized Railways—*Concluded.*

Number.	Name of Railway.	Under what Act subsidized.	Subsidy per mile.	Total Subsidy not to exceed—	Subsidy for a term of years.	Total Subsidy.
			\$	\$	\$	\$
28	Montreal to Sorel Railway.....	48 Vic., c. 59...	1,600	72,000	.....	72,000
	do Quebec, Provincial Gov't.....	47 Vic., c. 8...	6,000	954,000	.....	2,394,000
29	do Ottawa do	47 Vic., c. 8...	12,000	1,440,000	.....	To be capital- ized.
30	do and Western Ry., St. Jérôme....	46 Vic., c. 25...	3,200	160,000	.....	320,000
	do do Westward.....	47 Vic., c. 8...	3,200	160,000	.....
	Northern and Western Railway to Dum- phy's.....	46 Vic., c. 25...	3,200	102,400	.....
31	Northern and Western Railway to Dum- phy's. (Cancel Act of 46 Vic.).....	47 Vic., c. 8...	3,200	128,000	.....	147,200
	Northern and Western Railway to Dum- phy's, from north end of 40 miles to Bois- town	48 Vic., c. 59...	3,200	19,200	.....
32	Napanee and Tamworth Railway.....	46 Vic., c. 25...	3,200	89,600	.....	159,600
	Tamworth towards Rogart (Cancelled)...	47 Vic., c. 8...	3,200	70,400	.....
	Cancel Act of 47 Vic.	48 Vic., c. 59...	4,375	70,000	.....
33	New Brunswick and Prince Edward Isl'd Railway, Sackville to Cape Tormentine	48 Vic., c. 59...	3,200	118,400	.....	118,400
34	Oxford to New Glasgow.....	45 Vic., c. 14...	3,200	224,000	.....	224,000
	Oxford, Sydney to Louisburg.....	47 Vic., c. 8...	for 15 years.	.....	\$30,000 per annum for 15 years, and transfer Eastern Extension from New Glasgow to Canso.	
35	Ontario Pacific Ry. (Cornwall to Perth)....	47 Vic., c. 8...	3,200	262,400	.....	262,400
36	Ottawa, Waddington and New York Ry.....	48 Vic., c. 59...	3,200	166,000	.....	166,400
37	Pontiac Pacific Junction Railway	47 Vic., c. 8...	3,200	272,000	.....	272,000
38	Quebec Central Railway	47 Vic., c. 8...	3,200	211,200	.....	211,200
	Rivière du Loup to Edmonton.....	45 Vic., c. 14...	3,200	240,000	.....
39	do do	48 Vic., c. 59...	2,800	210,000	.....	498,000
	do do	48 Vic., c. 59...	6,000	48,000	.....
40	Richibucto and St. Louis.....	47 Vic., c. 8...	3,200	22,400	.....	22,400
	St. Raymond and Lake St. John.....	45 Vic., c. 14...	3,200	384,000	.....
41	St. Raymond and Lake St. John (Quebec and Lake St. John Railway).....	46 Vic., c. 8...	3,200	80,000	.....	560,000
	St. Raymond to Junction with North Shore, (Quebec and Lake St. John Ry.)..	48 Vic., c. 58...	3,200	96,000	.....
42	St. John Bridge, Railway Extension.....	46 Vic., c. 25...	.....	500,000	.....	500,000
43	St. Martin's Junction to Quebec.....	47 Vic., c. 8...	6,000	960,000	.....	1,300,000
	do do	48 Vic., c. 58...	2,125	340,000	.....
44	St. Andrew's and Lachute.....	47 Vic., c. 8...	3,200	22,400	.....	22,400
45	Thunder Bay Colonization Railway, Murillo to east end of Whitefish Lake.....	48 Vic., c. 59...	3,200	92,000	.....

APPENDIX No. 22.

REPORT OF SURVEY, FOR THE RESTIGOUCHE AND VICTORIA RAILWAY.

OTTAWA, 18th January, 1886.

SIR,—I have the honor to submit my report upon the progress made with surveys prosecuted under my direction during the past season.

1st.—SHORT LINE RAILWAY.

Montreal to the Harbors of St. John, St. Andrews and Halifax.

In August last I was authorized by the Right Honorable the Premier to proceed with a location survey of the unconstructed portions lying between the River St. Lawrence and Mattawamkeag, and also to make a preliminary survey between Harvey and Salisbury, on the route adopted as the shortest and best practicable line connecting the city of Montreal with the harbors of St. John, St. Andrews and Halifax, with a view of obtaining such information as would enable capitalists to judge of the sufficiency, or otherwise, of the subsidy granted by Parliament in aid of the construction and securing of a direct through line. Accordingly, I at once organized an engineering staff for this purpose, placing the several sections of the surveys to be undertaken in charge of the officers named below, viz.:—

No. 1. Lachine to near Orford Lake. (Location survey, in charge of Mr. McLean.)

No. 2. Near Orford Lake to Lennoxville. (Location survey, in charge of Mr. Foote.)

No. 3. Moosehead Lake to Mattawamkeag. (Location survey, in charge of Mr. Middleton.)

No. 4. Harvey, towards Salisbury. (Preliminary survey, in charge of Mr. Bright.)

No. 5. Salisbury, towards Harvey. (Preliminary survey, in charge of Mr. Brown.)

The field work is all completed, except about 20 miles near Mattawamkeag, which is rapidly being brought to a termination by Mr. Middleton. The results of these surveys are very satisfactory, the distance in each case being a few miles less than those given in my previous report. On the St. Lawrence,—Lennoxville section,—there are no grades of greater severity than 53 feet per mile, and no curves exceeding 6 degrees, with moderately light work, as a whole. The plans and profiles are not yet completed, nor has the engineer made his report upon this section.

On the Moosehead,—Mattawamkeag section,—the maximum grade is 58 feet per mile, and the maximum curvature 6 degrees, the work being reported moderately heavy, but with very little solid rock. Neither plans or profiles are completed, nor has the engineer made his final report.

On the Harvey and Salisbury section the maximum grade is 57 feet per mile, and the maximum degree of curvature will certainly not exceed 6 degrees, with very light work. The plans and profiles of this section are completed, and the engineers in charge have made their reports. As soon as the work in all the sections is fully completed, I shall at once report progress, submitting the plans, profiles and engineers' reports.

So satisfactory are the results of the surveys, that the International Railway Company, of which Mr. Duncan McIntyre is President, are evidently convinced that the subsidy granted by Parliament is sufficient to warrant them in undertaking the work, and they have entered into a contract with the Dominion Government for carrying this enterprise through to completion.

2ND.—CAPE BRETON RAILWAY.

Amongst the surveys for which appropriations were made by Parliament at its last Session was that for a line of railway through the Island of Cape Breton, in Nova Scotia, commencing opposite the terminus of the Eastern Extension Railway, in the Strait of Canso, and extending to either Sydney or Louisburg. In August I was authorized by the Department to proceed with this survey, and I forthwith placed Mr. Hiram Donkin in charge, and at once commenced field operations, by running a line to Louisburg, crossing the St. Peter's Canal and passing south of the Bras d'Or Lake. The field work on this line is completed, and the plans and profiles are being prepared. With the results, I am rather disappointed. The grades will be severe, being 80 feet to the mile, and the work heavy. The distance is 83 miles. When the survey of this line was nearing completion an earnest appeal was made to have the line to Sydney surveyed. The request was granted, and Mr. Donkin is now engaged making a survey of a line commencing at the same point in the Strait of Canso as the Louisburg line, and running west and north of the Great Bras d'Or Lake, until the Narrows are reached and crossed, after which, taking as direct a line as possible to Sydney. About two-thirds of this line is surveyed, and the grades prove to be severe and the works of construction heavy.

When the survey is completed, the plans and profiles prepared, and report of the engineer in charge received, they will be submitted.

3RD.—RESTIGOUCHE AND VICTORIA RAILWAY.

Under instructions from the Department to have an exploration made of the proposed route for this railway, I detailed Mr. Duffy for the service, who, accompanied by Mr. Heckman, left Ottawa in August to take the field.

This proposed railway is to form a junction with the Intercolonial Railway about 8 miles west of Campbellton, to cross the divide between the waters of the Restigouche and those of the St. John rivers, and form a junction with the New Brunswick Railway at Grand Falls.

The above named gentlemen explored the entire route on foot, the whole distance being through a dense forest, in which they report a very large quantity of very fine timber. Careful barometrical observations were taken, with a view of ascertaining the elevations to be overcome and the severity of the grades necessary to surmount them with a railway. Mr. Duffy reports light grades and easy curvature can be obtained throughout, and is of opinion that the work of construction will not be costly, the work being generally very light. The total length of this proposed line, from its connection with the Intercolonial Railway, on the Restigouche River, to its junction with the St. John River, is estimated at 108 miles. I submit herewith Mr. Duffy's report.

I have the honor to be, Sir,
Your obedient servant,

COLLINGWOOD SCHREIBER,
Chief Engineer Government Railways.

A. P. BRADLEY, Esq.,
Secretary Railways and Canals.

OTTAWA, 29th September, 1885.

SIR,—In accordance with your letter of instructions, dated 11th August, 1885, I have the honor to report that the proposed Restigouche and Victoria Railway will require to leave the Intercolonial Railway about 4 miles west of Campbellton, and follow the original bank of the Restigouche river for about $1\frac{1}{2}$ mile, where the valley of Christopher's Brook is reached, thence, following the valley of said brook to the forks of the east and west branches, keeping up the valley of the

west branch to its head waters, which are reached about the 13th mile from the Intercolonial Railway, and is about 235 feet above the sea.

It would require a grade of 14 feet per mile to reach this point, but this will be very much broken up in practice, and necessitate steeper grades at different points, none of which need exceed 53 feet per mile. The above brook will require to be crossed and re-crossed at several points, to avoid heavy side hill work and sharp curvature, as the several structures will require openings of 30 feet, and bridge timber being plentiful, the cost will be less to bridge than excavate.

From the source of Christopher's Brook there will be a stretch of nearly level country for about 1 mile, where the source of Meadow Brook is reached. The line will require to follow this brook for a distance of about 2 miles, when it will be necessary to run in a southerly direction, so as to strike the bank of the Upsalquitch River, about $1\frac{1}{2}$ miles above the mouth of Meadow Brook, or the "Little Falls," on the Upsalquitch.

The banks at the proposed point of crossing are high, and composed of shale rock, lying on nearly perpendicular beds. Even with this latter objection, a good foundation can be had for the abutments. The river is shallow, there only being $2\frac{1}{2}$ to 3 feet of water, with gravel bed lying on shoal rock.

The spring freshets bring the water up about 9 feet. There is no ice flow worth mentioning, on account of the shallow water, the ice being all broken up before the spring freshets set in.

The bridge over this river will require two spans of 100 feet each.

From the bridge over the Upsalquitch the line will keep the west bank till the mouth of Boland's Brook is reached; thence, it will follow the valley of the latter stream to the mouth of Four-Mile stream; it will then follow the latter stream to its head waters, which flow out of a small lake that empties its waters north and south, north into Burnt Land Brook and south into Four-Mile Brook. The summit is reached about $30\frac{1}{2}$ miles from the Intercolonial Railway, and is about 638 feet above the sea. The grades on this part of the line will be very light, except that portion up the valley of Four-Mile Brook, which will require a grade of 63 feet per mile for about 1 mile. The curvature on the whole of this section will be very light, in no place exceeding 1,910 feet radius. There will be some shale rock excavation at different points along the Upsalquitch River, but in no place will it exceed 15,000 to 20,000 cubic yards per mile. The line cutting will principally be in gravel.

From $30\frac{1}{2}$ miles there will be about half a mile of nearly level country along the margin of the small lake mentioned above. It will then follow the valley of Burnt Land Brook to near its junction with the north-west branch of the Upsalquitch River, which is reached about the 35th mile, and is about 538 feet above the sea.

It will require a continuous grade of about 33 feet per mile to reach this point. The curvature will be light on this portion. The line cuttings will principally be in loam and gravel, with very little rock work.

From the 35th mile the line will follow up the valley of the north-west branch of the Upsalquitch River to its source, which is reached about the 60 mile, and is about 1,219 feet above the sea. It will require a continuous grade of 27 feet per mile to reach this point, but as the grades will necessarily be very much broken up in practice, the grades will have to be increased at different points but in no case need they exceed 53 feet per mile, and that only for a short distance. The sharpest curve on this portion will not exceed 955 feet radius, and that only in two or three places, and for a short distance. In following up the Upsalquitch, it will be found necessary to cross and re-cross it at different points, to avoid heavy side-hill cutting through shaly rock bluffs, which approach close to the river edge. The structures required for the above work will range from 30 to 100 feet openings, but as bridge timber is plentiful, and close to the different sites, they will cost less than the rock excavation. The line cuttings will principally be in loam, gravel, and a little shale rock in a few places. The river is very shallow all the way up, there not being over from 2 to 3 feet of water. The spring freshets bring it up about 7 feet. The bed is gravel and rock.

From the 60th mile to Five-Finger Brook, which is reached at the 65th mile by a gradually descending grade, and is 931 feet above the sea, the grade on this portion is 57 feet per mile; but on a location survey it will be necessary to keep about $1\frac{1}{2}$ miles further west than the line I walked over. The ground being much lower in that direction, the grades will be very much improved. The curvature will be very light, in no place exceeding 1,910 feet radius.

The line cuttings will be in loam and clay. The Five-Finger Brook will require an opening of 70 feet. The banks are high, and the bed of the river is gravel, lying upon shale rock.

From the 65th mile or Five-Finger Brook, the ground gradually ascends to the 71st mile, when the summit is reached at an elevation of 1,119 feet above the sea. This is surmounted by an ascending grade of 30 feet per mile. The line cuttings on this portion are partly loam and gravel with a little rock. The curvature is very light, not exceeding 1,910 feet radius at any point.

From the 71st to the 77th mile, where the source of Grand River is reached, the ground gradually descends to an elevation of 935 feet above the sea and is reached by a grade of 31 feet per mile.

From the 77th to the 80th mile the ground gradually ascends to an elevation of 980 feet above the sea, and is reached by a grade of 15 feet per mile.

From the 80th mile the line will follow the valley of the Little River to about the 100th mile, when it will be necessary to gradually leave the river, to enable the line to gain the table land on the west bank, that the New Brunswick Railway may be reached on the north bank of the St. John River, and a connection made with that railway close to the present bridge, thereby being enabled to use the track and bridge to reach Grand Falls, which is about half a mile east of the bridge.

The line cuttings from the 71st mile of the New Brunswick Railway (108 miles) will principally be through clay and gravel. Rock will also be encountered at different points, but not in large quantities.

The country which the line will traverse is well timbered with spruce, birch and cedar, but has only been partly lumbered in, on account of the expense of taking in supplies. The only means lumbermen have of doing this work at present is by horses and scows on the Restigouche and Upsalquitch Rivers, and it being an expensive and dangerous operation, lumbering is carried on on a very small scale on that account; but with railway facilities there is no doubt lumbering would be entered into on a larger scale. It would also open up the industry in birch timber, which, at present, is a dead letter in that part of the country.

There are also good mill sites, with plenty of water power, on the Upsalquitch River, at Grand Falls; also on the north-west branch of the Upsalquitch there is another fall of about 30 feet (about 30 miles from the forks), and on Burnt Land Brook, Five-Finger's and Boland's Brook. I have no doubt mills would be built on all of them for the manufacture of board and shingles. For the manufacture of the latter there is abundant timber to last for years.

The country in general is well adapted for agricultural purposes, and, no doubt, the land would soon be taken up if railway facilities could be had.

I have the honor to attach a small scale plan and profile, showing the general direction and approximate, grades.

I have the honor to be, Sir,

Your obedient servant,

AMBROSE DUFFY,

Engineer-in-Charge.

COLLINGWOOD SCHREIBER, Esq.,
Chief Engineer of Government Railways.

REPORTS

RAILWAY STATISTICS

OF CANADA

AND CAPITAL, TRAFFIC AND WORKING EXPENDITURE
OF THE RAILWAYS OF THE DOMINION.

1884-85

Printed by Order of Parliament.



OTTAWA:

PRINTED BY MACLEAN, ROGER & CO., WELLINGTON STREET.

1886.

CANADIAN GOVERNMENT RAILWAYS.

OFFICE OF THE CHIEF ENGINEER AND GENERAL MANAGER,
OTTAWA, 6th April, 1886.

SIR,—I have the honor to present the Statistical Return of the Railways of Canada for the year ended the 30th June, 1885.

As a ready reference for obtaining total results, I give the following figures, taken from the attached tables :—

The total Miles of Railway completed (track laid).....	10,773
do Amount of Capital paid up.....	\$454,082,509*
do do Government Bonuses paid up.....	\$119,603,255
do do do Loans	\$ 39,596,489
do do Municipal Aid	\$ 12,472,450
do Miles of Railway in operation	10,150
do Amount of Earnings	\$ 32,227,469
do do Working Expenses.....	\$ 24,015,351
do do Net Earnings.....	\$ 8,212,118
do Number of Passengers carried	9,672,599
do Tons of Freight carried	14,659,271
do Number of Miles run by Trains	30,623,689
do Casualties—Killed.....	157
do do Injured	684
do Mileage of Iron Rails.....	1,228
do do Steel do	9,545
do do Sidings	1,197
do Number of Elevators	17
do do Guarded Level Crossings	112
do do Unguarded do	6,729
do do Overhead Bridges	312
do do Crossings of other Railways	142
do do Junctions with do	204
do do do Branch Lines	109
do do Engines owned.....	1,490
do do do hired.....	34
do do 1st Class Cars owned.....	676
do do do hired	28
do do 2nd Class and Emigrant Cars owned	487
do do do do hired..	14
do do Baggage, Mail & Express Cars owned	382
do do do do hired..	21

Embracing Ordinary and Preference Shares, Bonds and "Capital from other sources."

The total Number of Cattle and Box Cars owned.....	20,867
do do do do hired.....	1,299
do do Platform Cars owned.....	13,560
do do do hired	201
do do Coal and Dump Cars owned.....	2,391
do do do do hired.....	Nil.

The two following tables will be found convenient for reference :—

NOMINAL CAPITAL—Paid up.

	Total.	Per Mile of Railway.
	\$ cts.	\$ cts.
Ordinary share capital	216,425,491 85	20,089 62
Preference do	95,756,670 44	8,888 58
Bonded debt	141,370,963 40	13,122 71
Aid from Dominion Government.....	140,062,024 52	13,001 21
do Ontario do	5,946,984 52	552 03
do Quebec do	6,878,295 41	638 48
do New Brunswick do	3,594,165 00	333 62
do Nova Scotia do	2,718,275 00	252 32
do Municipalities.....	12,472,450 43	1,157 75
Capital from other sources.....	529,383 28	49 14
Total	625,754,703 85	58,085 46

NOTE.—The above does not include capital of Montreal and Vermont Junction Railway, and Stanstead, Shefford and Chambly Railway, for which no returns of Capital have been made.

GOVERNMENT and Municipal Loans, Bonuses, &c., promised on Railways, the construction of which is already commenced (including the cost of Government Railways).

	Total.	Paid.	To be Paid.
	\$ cts.	\$ cts.	\$ c
Dominion Government.....	155,307,050 65	140,062,024 52	15,245,026
Ontario do	5,946,984 52	5,946,984 52	.....
Quebec do	8,223,910 02	6,878,295 41	1,345,614
New Brunswick do	3,932,665 00	3,594,165 00	338,500
Nova Scotia do	3,046,549 00	2,718,275 00	328,274
Municipalities in Ontario	9,569,041 78	9,418,505 81	150,235
do Quebec	4,112,000 00	1,982,144 62	2,129,855
do New Brunswick	316,500 00	296,500 00	20,000
do Nova Scotia.....	250,000 00	250,000 00	.....
do Manitoba	525,000 00	525,000 00	.....
Total	191,229,700 97	171,672,194 88	19,557,506

It will be seen, by reference to the following table, that the Casualties during the year 1884-85 were very considerably less than during the previous year:—

	Killed.		Injured.	
	1884-85.	1883-84.	1884-85.	1883-84.
Fell from cars or engines.....	34	39	91	81
Getting on and off trains in motion.....	8	17	56	62
At work making up trains.....	2	2	18	29
Putting head or arms out of car windows.....			3	
Coupling cars.....	8	9	277	252
Collisions or trains thrown from track.....	14	41	83	132
Explosions.....			2	6
Striking bridges.....	1	4	9	4
Walking or being on track.....	83	100	70	87
Other causes.....	7	15	75	143
Total.....	157	227	684	796

Considering the generally depressed state of trade throughout the world, the results of the year's operations of the Railways of Canada, as exhibited by the attached Statements, may be considered as satisfactory.

I have the honor to be, Sir,

Your obedient servant,

COLLINGWOOD SCHREIBER,

Chief Engineer and General Manager, Government Railways.

A. P. BRADLEY, Esq.,

Secretary, Department of Railways and Canals,
Ottawa.

TABLE showing Locations of the Railways of the Dominion of Canada, 30th June, 1885.

Name of Railway.	Description.	Distances.	
		Miles.	Total.
Albert	Salisbury Station, Intercolonial Railway, to Hope- well and Albert on Chignecto Bay, and Harvey, N.B.		51·00
Atlantic and North-West.....	Mile End to Lachine; 7 miles under construction. Will cross the St. Lawrence near Lachine		7·00
Bay of Quinté and Navigation Co.	Deseronto, on Bay of Quinté, Lake Ontario, to Deseronto Junction, Grand Trunk Railway.....		3·50
Canada Atlantic.....	City of Ottawa to Junction with Grand Trunk Railway at Lacolle. Crosses the St. Lawrence at Coteau by steam ferry. Connects with Grand Trunk Railway at Coteau and Lacolle.....		134·80
Canada Southern	Main Line—Windsor to Suspension Bridge.....	226·18	
	Amherstburg Branch—Essex Centre to Amherstburg St. Clair do St. Clair Junction to Court- right.....	15·70 62·63	
	Fort Erie Branch—Fort Erie to Welland Junction. Erie and Niagara Branch—Fort Erie to Niagara....	17·50 30·60	
	Oil Springs Branch—Oil Springs to Oil City	2·83	
do Leased.....	Sarnia, Chatham and Erie—Oil City to Petrolia....	7·00	
Canadian Pacific.....	Main Line—Montreal to Port Moody	2,893·00	
	Branches in operation and under construction in Manitoba and North-West	246·10	
	Leased line in Manitoba and North-West— Manitoba and South-Western Colonization.....	50·70	
	Branches in operation and under construction in Ontario and Quebec	187·10	
	Leased Lines in Ontario and Quebec	574·50	
	Main Line in operation—		3,951·40
	Miles. Montreal to Stephen.....	2,385·80	
	Branches in operation—		
	Ste. Thérèse to St. Lin.....	15·00	
	do St. Eustache	8·00	
	St. Lin Junction to St. Jérôme..	11·00	
	Buckingham Station to Bucking- ham Village.....	4·10	
	Carleton Junction to Brockville..	45·50	
	Hull to Aylmer.....	7·50	
	Winnipeg to Emerson	66·00	
	do Manitou	102·40	
	do Stonewall.....	19·80	
	do Selkirk	22·00	
	Emerson and Rosenfeld.....	22·00	
	Rosenfeld to Gretna	13·90	
		337·20	
	Leased Lines in operation—		
	Manitoba and South-Western Col- onization.....	50·70	
	Ontario and Quebec—		
	Toronto to St. Thomas	118·90	
	Toronto Junction to Smith's Falls	211·00	
	Streetsville Junction to Melville Junction	31·60	
	Cataract to Elora	27·50	
		389·00	
	Carried forward	3,162·70	

TABLE showing Locations of Railways, &c.—*Continued.*

Name of Railway.	Description.	Distance.	
		Miles.	Total.
	Brought forward	3,162.70	
Canadian Pacific.....	Leased Lines in operation— Toronto, Grey and Bruce— Toronto to Owen Sound 116.50 Orangeville to Teeswater..... 69 00 185.50		
	Total in operation	3,348.20	
	Also St. Lawrence and Ottawa since 1st March, 1885.		
Caraquet	From Gloucester Junction, Intercolonial Railway, 5 miles south of Bathurst Station, easterly along the south shore of Baie des Chaleurs to Shippegan Harbour, N.B. 20 miles completed, but not open for traffic		60.00
Carillon and Grenville	Carillon to Grenville, P.Q. (connecting at both termini with Ottawa River Navigation Company's steamers. Gauge, 5 ft. 6 in.		13.00
Central Ontario	From Picton, in Prince Edward County, Ont., to Coe Hill Iron Mines, Wollaston, County of Hastings. (Connects with Grand Trunk at Trenton, Midland Railway, 2 miles west of Stirling, and Ontario and Quebec in Township of Rawdon		104.00
Chatham Branch.....	Town of Chatham, N.B., to Chatham Junction with Intercolonial Railway, and connecting with Northern and Western Railway		9.00
Cobourg, Peterboro' and Marmora	Town of Cobourg to Chemong Lake, 36 miles, the track on twelve miles of which has been taken up	24.50	
	Connects at Harwood, Rice Lake, by steamer, with its Marmora Branch to Blairton Iron Mines, on Crow Lake.....	8.50	
	Two short branches to saw mills	2.00	35.00
	Only now in operation between Cobourg and Rice Lake, 15 miles. Gauge, 5 ft. 6 in.		
Cumberland Railway and Coal Company (formerly Spring Hill and Parrsboro')	Spring Hill Junction, Intercolonial Railway, to Spring Hill Coal Mines, N.S., and Parrsboro', on the Bay of Fundy		32.00
Eastern Extension (late Halifax and Cape Breton)	Junction with Intercolonial Railway at New Glasgow to Gut of Canso, N.S.		79.75
Elgin, Petitediac and Havelock.	From Elgin, County of Albert, N.B., to Petitediac Junction with Intercolonial Railway—an extension thence to Havelock, in County of King's, is now being constructed	14.00	
		13.00	27.00
Erie and Huron.....	Rondeau, Lake Erie, Ont., to Wallaceburg, passing through town of Chatham, Ont., connects with Canada Southern and Great Western Railways... ..		41.50
Grand Southern	St. John to St. Stephen, N.B.		82.50

TABLE showing Location of Railways, &c.—*Continued.*

Name of Railway.	Description.	Distances.	
		Miles.	Total.
Grand Trunk—			
Grand Trunk Division.....	Main Line—Sarnia to Point Lévis and Island Pond.	735·25	
	Sarnia Extension—Port Edward to Great Western.	2·50	
	Branch—Montreal to Wharves	2·00	
	Three Rivers Branch—Arthabaska to Doucet's Landing	35·25	
	Kingston Branch—Main Line to Kingston.....	2·25	
	Galt and Waterloo Branch—Waterloo and Berlin to Galt	14·50	
	London Branch—St. Mary's to London.	22·00	
	Champlain Branch—St. Lambert to Rouse's Point, Montreal to Lachine, St. Isidore to Province Line.	73·50	
Leased and Operated.....	Buffalo and Lake Huron—Goderich to Fort Erie....	162·00	
	Georgian Bay and Lake Erie—Port Dover to Wiar-ton	171·50	
	Montreal and Champlain Junction—Brosseau to Dundee.....	62·25	
Great Western Division..	Main Line—Niagara Falls to Windsor.....	229·63	
	Toronto Branch—Hamilton to Toronto.....	38·50	
	Galt do Harrisburg to Guelph.....	28·98	
	Brantford do do Brantford	8·00	
	Sarnia do Komoka to Sarnia	50·85	
	Petrolia do Wyoming to Petrolia.....	4·75	
	Loop Line—Fort Erie to Glencoe.....	145·50	
	Allanburg Branch—Allanburg to Clifton Junction.	8·32	
	Welland—From Port Colborne to Port Dalhousie, Ont.....	25·00	
Leased and Operated.....	Wellington, Grey and Bruce—Guelph to South-ampton and Palmerston to Kincardine.....	168·35	
	London and Port Stanley—London to Port Stanley.	23·66	
	London, Huron and Bruce—Hyde Park to Wing-ham Junction.....	68·89	
	Brantford, Norfolk and Port Burwell—Brantford to Tilsonburg Junction.....	34·74	
	NOTE—The Georgian Bay and Lake Erie Railway includes the former Georgian Bay and Wellington, Port Dover and Lake Huron, and Stratford and Huron Railways.		
Leased—Midland Division.....	Midland (Port Hope to Peterboro' and Midland on Georgian Bay).....	165·75	
	Toronto and Nipissing (including former Lake Simcoe Junction Railway).....	111·50	
	Grand Junction (from Belleville to North Hasting and Peterboro').....	87·75	
	Whitby and Haliburton (including former Victoria and Whitby, Port Perry and Lindsay Railways):	99·75	
	Madoc Junction to Bridgewater.....	8·50	
			2,591·42
Great Northern.....	From near St. Andrew's, on Ottawa River, to Quebec (8 miles constructed, from St. Jérôme to New Glasgow		170·00
Intercolonial.....	Main Line—Halifax to Quebec.....	677·00	
	Branch—Moncton to St. John.....	89·00	
	do Truro to Pictou.....	52·00	
	do Painsec to Pointe du Chêne.....	11·00	
	do St. Charles to Lévis by Chaudière Loop Line.....	25·00	
	do Dalhousie Junction to Dalhousie.	7·00	
			861·00

TABLE showing Location of Railways, &c.—Continued.

Name of Railway.	Description.	Distances.	
		Miles.	Total.
International.....	Lennoxville, P.Q., to Boundary Line of Maine		81.66
Jacques Cartier Union.....	From Lachine Bank Station, on the Grand Trunk, to Canadian Pacific, near Sault au Recollet.....		6.81
Kent Northern.....	Richibucto, N.B., to Intercolonial Railway.....		27.00
Kingston and Pembroke	Main Line—Kingston to Pembroke	103.00	
	Glendon Branch—Bedford to Zanesville.....	4.00	
	do to Robertsville Mines	1.00	
	do to Doran's Mills, Charcoal works, McLaren's Mills, Bethuhen's Mines, Lavant Mills, Clyde Forks Mills and Francis Mills.....	4.00	
	(Connects with Grand Trunk at Kingston, Canadian Pacific at Sharbot Lake and at Renfrew.)		112.00
Manitoba and North-Western.....	From Junction with Canadian Pacific Railway at Portage la Prairie, 56 miles west of Winnipeg, north-westerly to town of Minnedosa		78.54
	(An extension of 51½ miles westward from Minnedosa is now under construction.)		
Manitoba South-Western Colonization.....	From Winnipeg to Carman, present end of track. (Now under lease to the Canadian Pacific Railway and included in that system.)		50.70
Massawippi Valley.....	From Lennoxville to Vermont Boundary, there connecting with Connecticut and Passumpsic Rivers Railway. Also connects with Grand Trunk and International Railways at Lennoxville.....	32.00	
	Branch—Stanstead Junction to Stanstead	2.00	
			34.00
Montreal and Sorel	From Junction with Grand Trunk at St. Lambert to Armstrong on Richelieu River opposite to Sorel.....		44.67
Montreal and Vermont Junction..	From Junction with Stanstead, Shefford and Chambly Railway, 2½ miles east of St. John, P.Q., to Junction with Vermont and Canada Railway, at Vermont Boundary. Also connects at Stanbridge with Lake Champlain and St. Lawrence Junction Railway.....		23.60
Napanee, Tamworth and Quebec.	From Junction with Grand Trunk Railway at Town of Napanee, Ont., to Village of Tamworth.....		28.50
New Brunswick.....	From Gibson (opposite Fredericton on St. John River) N.B., to Edmundston	164.00	
	Branch—Newbury Junction to Woodstock	6.00	
	do Aroostook to Maine Boundary	4.00	
			174.00
	Leased Lines—		
	New Brunswick and Canada—Woodstock to St. Stephen and St. Andrew	127.00	
	St. John and Maine—Carleton to St. Croix and Vanceboro'	92.00	
	Fredericton—Fredericton Junction to City of Fredericton	22.50	
			241.50
New Brunswick and Prince Edward Island.....	From Sackville Station, Intercolonial Railway, to Cape Tormentine. (Under construction, 33 miles now graded, and 17 miles of track laid to Bay Verte)		37.00

TABLE showing Location of Railways, &c.—Continued.

Name of Railway.	Description.	Distances.	
		Miles.	Total.
Northern and North-Western.....	Northern Railway of Canada and Hamilton and North-Western Railway are worked under a joint arrangement. Northern Railway— Main Line—Toronto to Collingwood..... 94·96 Branch—Lefroy to Bell Ewart..... 1·34 do Allandale to Gravenhurst..... 50·94 do Collingwood to Meaford..... 20·50 do Colwell to Penetanguishene..... 33·50 do Flos Tramway—Elmvale to Hillsdale... 8·50		209·74
	Hamilton and North-Western— Main Line—Port Dover, on Lake Erie, to Collingwood, on Lake Huron..... 151·00 Branch—Beeton to Allandale..... 25·30		176·30
Northern and Western of New Brunswick.....	From Gibson (opposite City of Fredericton) to Chatham Junction—Intercolonial Railway..... Connects also with New Brunswick Railway at Gibson—(under construction, 67 miles of track now laid.)		107·00
Northern and Pacific Junction Railway.....	From Northern Railway at Gravenhurst to Junction with Canadian Pacific Railway at La Vase River, eastern end of Lake Nipissing—under construction, 10 miles of track laid.....		111·25
North Shore, formerly portion of Quebec, Montreal, Ottawa and Occidental Railway.....	Maine Line—City of Quebec to Junction with Canadian Pacific Railway at St. Martin's, 11 miles out of Montreal..... 159·00 Branches— Piles—Piles Branch Junction to Grand Piles... 27·50 Loop line—Three Rivers to town of Three Rivers 3·50 Joliette—Joliette Junction to Joliette..... 6·50 St. Felix—Joliette to St. Felix..... 10·50 Berthier—Berthier Junction to Berthierville... 2·00		209·00
North-Western Coal and Navigation.....	From Junction with Canadian Pacific Railway at Dunmore, 651 miles west of Winnipeg, in a westerly direction to the Colliery at Lethbridge, in the District of Alberta, gauge 3 ft.....		109·50
Nova Scotia, Nictaux and Atlantic Central.....	From Middleton, on the Windsor and Annapolis Railway to town of Lunenburg on the Atlantic Coast, N.S.—under construction.....		73·00
Oxford to New Glasgow, section of Montreal and European Short Line Railway.....	Pugwash Junction to Granton, N.S..... 50·00 Oxford Branch—Oxford to Pugwash... 20·00 Pictou Branch—Loch Broom to Pictou..... 6·00 (Not completed.)		76·00
Pontiac Pacific Junction.....	From Junction with Canadian Pacific Railway at Aylmer, Que., to Pembroke, Ont..... (Rails laid on 21 miles only from Aylmer.)		85·00
Prince Edward Island.....	Main Line—Alberton to Georgetown..... 147·00 Branches—Mount Stewart to Souris..... 38·40 do Alberton to Tignish..... 13·10 do County Line to Cape Traverse..... 12·10 (Gauge 3 ft. 6 in.)		210·60

TABLE showing Locations of Railways, &c.—*Concluded.*

Name of Railway.	Description.	Distance.	
		Miles.	Total.
Quebec and Lake St. John.....	Quebec to Lake St. John..... (Junction with North Shore Railway 4 miles from Quebec.)—52 miles completed.	.....	180'00
Quebec Central.....	Main Line—Sherbrooke to Harlaka Junction, Intercolonial Railway, 5 miles from Lévis, Que..... Chaudière Branch—Beauce Junction to St. Francis Angus Branch—East Angus to Angus Mills.	138'00 15'00 1'00	154'00
	(Also connects with Grand Trunk at Sherbrooke, Passumpsic, and Waterloo and Magog Rail- ways)		
Stanstead, Shefford and Chambly.	From Junction with Montreal and Vermont Junction Railway, near St. John, Que., easterly to Waterloo (Connects with South-Eastern, and Champlain and St. Lawrence Junction Railways.)	.....	43'00
South-Eastern.....	Main Line—West Farnham to Boundary Line..... Northern Division—Sutton Junction to Sorel Branch—Drummondville to L'Avenir. Leased Lines— Montreal, Portland and Boston—Longueuil and St. Lambert to Farnham Branch—Marieville to St. Césaire..... Lake Champlain and St. Lawrence Junction— Stanbridge to St. Guillaume.....	44'00 96'00 12'00 36'00 9'00 63'00	260'00
	(Connects with Connecticut and Passumpsic Railway, Grand Trunk, and Stanstead, Shef- ford and Chambly.)		
St. Lawrence and Ottawa. (Now under lease to Canadian Pacific Railway)	Ottawa to Prescott Branch—Chaudière Junction to Chaudière. (Con- nects with Grand Trunk Railway and St. Law- rence River Steamers at Prescott, and with Canadian Pacific Railway at Chaudière, Ottawa, and Canada Atlantic Railway).....	54'00 5'00	59'00
St. Martin's and Upham.....	Hampton Junction, Intercolonial Railway, to St. Martin's, on Bay of Fundy. ....	.....	29'12
Thousand Islands.....	Gananoque to Gananoque Station, G.T.R. ....	.....	3'15
Waterloo and Magog.....	Waterloo to Magog, Que. (Connects with Stan- stead, Shefford and Chambly and South-Eastern Railways) Missisquoi Valley Railway. (Only completed from Bolton Forest on Waterloo and Magog, southerly for 10'10 miles, which is operated by the latter).	20'00 10'10	30'10 67'00
Western Counties.....	Yarmouth to Digby, N.S.....	.....	84'00
Windsor and Annapolis.....	Windsor to Annapolis, N.S.....	.....	32'00
Leased Line	Windsor Branch—Windsor to Windsor Junction, Intercolonial Railway, 14 miles from Halifax.....	.....	116'00

The gauge of these railways is 4 feet 8½ inches, with the following exceptions:—

	Gauge.	
	Ft.	In.
Carillon and Grenville	5	6
Cobourg, Peterboro' and Marmora.....	5	6
North-Western Coal and Navigation Co	3	0
Prince Edward Island.....	3	6

No. I.—SUMMARY STATEMENT OF CAPITAL FOR THE YEAR ENDED 30th JUNE, 1885.

Number.	NAME OF RAILWAY.	LENGTH OF LINE.			ORDINARY SHARE CAPITAL.			PREFERENCE SHARE CAPITAL.			BONDED DEBT.			GOVERNMENT AID.			MUNICIPAL AID.			CAPITAL FROM OTHER SOURCES.			TOTAL CAPITAL.		FLOATING DEBT.		Remarks.		
		Completed. (Mile.)	Under Construction. (Mile.)	Total. (Mile.)	Authorized. \$ cts.	Subscribed. \$ cts.	Paid up. \$ cts.	Authorized. \$ cts.	Subscribed. \$ cts.	Paid up. \$ cts.	Authorized. \$ cts.	Subscribed. \$ cts.	Paid up. \$ cts.	Rate of Interest. p. cent.	Name of Government.	Loan. \$ cts.	Bonds. \$ cts.	Subscription to Shares or Bonds. \$ cts.	Paid up. \$ cts.	Loan. \$ cts.	Bonds. \$ cts.	Subscription to Shares or Bonds. \$ cts.	Paid up. \$ cts.	Subscribed. \$ cts.	Paid up. \$ cts.	Amount. \$ cts.		Rate of Interest. p. cent.	Total Cost of Railway and Rolling Stock. \$ cts.
1	Alberta and North-West.	61-00	7-00	68-00	1,000,000 00	650,000 00	650,000 00				600,000 00			8	New Brunswick	1,000,000 00	455,000 00	455,000 00	70,000 00	70,000 00				1,180,000 00	1,180,000 00			1,783,385 80	1
2	Atlantic and North-West.	52-00	3-00	55-00	1,000,000 00	100,000 00	100,000 00							5	Ontario	1,000,000 00	100,000 00	100,000 00	10,000 00	10,000 00				1,100,000 00	1,100,000 00			1,203,385 80	2
3	Bay of Quinte and Navigation Co.	134-80		134-80	2,000,000 00	2,000,000 00	2,000,000 00	1,000,000 00	1,000,000 00	1,000,000 00				5	Ontario	2,000,000 00	2,000,000 00	2,000,000 00	200,000 00	200,000 00				2,200,000 00	2,200,000 00			2,403,385 80	3
4	Canada Atlantic.	382-44		382-44	15,000,000 00	15,000,000 00	15,000,000 00				20,000,000 00	17,040,441 52	17,040,441 52	5	Ontario	15,000,000 00	15,000,000 00	15,000,000 00	1,500,000 00	1,500,000 00				16,500,000 00	16,500,000 00			18,003,385 80	4
5	Canadian Pacific.	3,119-20	3,744-40	6,863-60	100,000,000 00	65,000,000 00	65,000,000 00				30,333,333 33	16,710,833 33	16,710,833 33	5	Ontario	100,000,000 00	65,000,000 00	65,000,000 00	6,500,000 00	6,500,000 00				71,500,000 00	71,500,000 00			78,003,385 80	5
6	Montreal to Ottawa (section of Q.M.O. & O.R.).	183-00		183-00	1,000,000 00	700,000 00	700,000 00							5	Ontario	1,000,000 00	700,000 00	700,000 00	70,000 00	70,000 00				770,000 00	770,000 00			840,385 80	6
7	Creston Valley.	183-00		183-00	1,000,000 00	700,000 00	700,000 00							5	Ontario	1,000,000 00	700,000 00	700,000 00	70,000 00	70,000 00				770,000 00	770,000 00			840,385 80	7
8	Manitoba South-Western.	189-50		189-50	2,000,000 00	2,000,000 00	2,000,000 00							5	Ontario	2,000,000 00	2,000,000 00	2,000,000 00	200,000 00	200,000 00				2,200,000 00	2,200,000 00			2,403,385 80	8
9	Ontario and Quebec.	192-00		192-00	1,000,000 00	813,800 00	785,450 00				3,600,000 00	3,600,000 00	3,600,000 00	4	Ontario	1,000,000 00	813,800 00	813,800 00	81,380 00	81,380 00				895,180 00	895,180 00			976,560 00	9
10	Toronto, Grey and Bruce.	192-00		192-00	1,000,000 00	813,800 00	785,450 00				3,600,000 00	3,600,000 00	3,600,000 00	4	Ontario	1,000,000 00	813,800 00	813,800 00	81,380 00	81,380 00				895,180 00	895,180 00			976,560 00	10
11	Quebec and North-Western.	192-00		192-00	1,000,000 00	813,800 00	785,450 00				3,600,000 00	3,600,000 00	3,600,000 00	4	Ontario	1,000,000 00	813,800 00	813,800 00	81,380 00	81,380 00				895,180 00	895,180 00			976,560 00	11
12	Quebec and North-Western.	192-00		192-00	1,000,000 00	813,800 00	785,450 00				3,600,000 00	3,600,000 00	3,600,000 00	4	Ontario	1,000,000 00	813,800 00	813,800 00	81,380 00	81,380 00				895,180 00	895,180 00			976,560 00	12
13	Quebec and North-Western.	192-00		192-00	1,000,000 00	813,800 00	785,450 00				3,600,000 00	3,600,000 00	3,600,000 00	4	Ontario	1,000,000 00	813,800 00	813,800 00	81,380 00	81,380 00				895,180 00	895,180 00			976,560 00	13
14	Quebec and North-Western.	192-00		192-00	1,000,000 00	813,800 00	785,450 00				3,600,000 00	3,600,000 00	3,600,000 00	4	Ontario	1,000,000 00	813,800 00	813,800 00	81,380 00	81,380 00				895,180 00	895,180 00			976,560 00	14
15	Quebec and North-Western.	192-00		192-00	1,000,000 00	813,800 00	785,450 00				3,600,000 00	3,600,000 00	3,600,000 00	4	Ontario	1,000,000 00	813,800 00	813,800 00	81,380 00	81,380 00				895,180 00	895,180 00			976,560 00	15
16	Quebec and North-Western.	192-00		192-00	1,000,000 00	813,800 00	785,450 00				3,600,000 00	3,600,000 00	3,600,000 00	4	Ontario	1,000,000 00	813,800 00	813,800 00	81,380 00	81,380 00				895,180 00	895,180 00			976,560 00	16
17	Quebec and North-Western.	192-00		192-00	1,000,000 00	813,800 00	785,450 00				3,600,000 00	3,600,000 00	3,600,000 00	4	Ontario	1,000,000 00	813,800 00	813,800 00	81,380 00	81,380 00				895,180 00	895,180 00			976,560 00	17
18	Quebec and North-Western.	192-00		192-00	1,000,000 00	813,800 00	785,450 00				3,600,000 00	3,600,000 00	3,600,000 00	4	Ontario	1,000,000 00	813,800 00	813,800 00	81,380 00	81,380 00				895,180 00	895,180 00			976,560 00	18
19	Quebec and North-Western.	192-00		192-00	1,000,000 00	813,800 00	785,450 00				3,600,000 00	3,600,000 00	3,600,000 00	4	Ontario	1,000,000 00	813,800 00	813,800 00	81,380 00	81,380 00				895,180 00	895,180 00			976,560 00	19
20	Quebec and North-Western.	192-00		192-00	1,000,000 00	813,800 00	785,450 00				3,600,000 00	3,600,000 00	3,600,000 00	4	Ontario	1,000,000 00	813,800 00	813,800 00	81,380 00	81,380 00				895,180 00	895,180 00			976,560 00	20
21	Quebec and North-Western.	192-00		192-00	1,000,000 00	813,800 00	785,450 00				3,600,000 00	3,600,000 00	3,600,000 00	4	Ontario	1,000,000 00	813,800 00	813,800 00	81,380 00	81,380 00				895,180 00	895,180 00			976,560 00	21
22	Quebec and North-Western.	192-00		192-00	1,000,000 00	813,800 00	785,450 00				3,600,000 00	3,600,000 00	3,600,000 00	4	Ontario	1,000,000 00	813,800 00	813,800 00	81,380 00	81,380 00				895,180 00	895,180 00			976,560 00	22
23	Quebec and North-Western.	192-00		192-00	1,000,000 00	813,800 00	785,450 00				3,600,000 00	3,600,000 00	3,600,000 00	4	Ontario	1,000,000 00	813,800 00	813,800 00	81,380 00	81,380 00				895,180 00	895,180 00			976,560 00	23
24	Quebec and North-Western.	192-00		192-00	1,000,000 00	813,800 00	785,450 00				3,600,000 00	3,600,000 00	3,600,000 00	4	Ontario	1,000,000 00	813,800 00	813,800 00	81,380 00	81,380 00				895,180 00	895,180 00			976,560 00	24
25	Quebec and North-Western.	192-00		192-00	1,000,000 00	813,800 00	785,450 00				3,600,000 00	3,600,000 00	3,600,000 00	4	Ontario	1,000,000 00	813,800 00	813,800 00	81,380 00	81,380 00				895,180 00	895,180 00			976,560 00	25
26	Quebec and North-Western.	192-00		192-00	1,000,000 00	813,800 00	785,450 00				3,600,000 00	3,600,000 00	3,600,000 00	4	Ontario	1,000,000 00	813,800 00	813,800 00	81,380 00	81,380 00				895,180 00	895,180 00			976,560 00	26
27	Quebec and North-Western.	192-00		192-00	1,000,000 00	813,800 00	785,450 00				3,600,000 00	3,600,000 00	3,600,000 00	4	Ontario	1,000,000 00	813,800 00	813,800 00	81,380 00	81,380 00				895,180 00	895,180 00			976,560 00	27
28	Quebec and North-Western.	192-00		192-00	1,000,000 00	813,800 00	785,450 00				3,600,000 00	3,600,000 00	3,600,000 00	4	Ontario	1,000,000 00	813,800 00	813,800 00	81,380 00	81,380 00				89					

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SUMMARY STATEMENTS.

No. 2.—SUMMARY STATEMENT of Characteristics

Number.	Name of Railway.	Length of Line. Miles.				Length of Siding.	Weight per Yard. Lbs.		Number of Ties to Mile.
		Completed. (Rails laid.)	Under Construc- tion.	Iron Rails.	Steel Rails.		Iron Rails.	Steel Rails.	
1	Albert.....	51·00		51·00		2·25	56		2,240
2	Atlantic and North-West.....		7·00						
3	Bay of Quinté & Navig'tn Co.	3·50			3·50	3·00		50	3,000
4	Canada Atlantic.....	134·80			134·80	13·20		56	2,200
5	Canada Southern	362·44			362·44	107·00		60 & 65	2,800
6	Canadian Pacific.....								
	Credit Valley								
	Manitoba and Southwest- ern Colonization.....	3744·40	207·00		3744·40	180·80	40 & 56	56 & 60	2,640
	Ontario and Quebec								
	Toronto, Grey & Bruce...]								
7	Caraquet	20·00	40·00		20·00	1·00		50	2,640
8	Carillon and Grenville.....	13·00		13·00			65		2,200
9	Central Ontario	104·00			104·00	10·00		42 & 56	2,640
10	Chatham Branch.....	9·00			9·00	·50		56 & 60	2,640
11	Cobourg, Peterboro' and Mar- mora	35·00		35·00		2 00	56		2,650
12	Cumberland Railway & Coal Co	32·00			32·00	7·00		56	2,000
13	Eastern Extension	79·75			79·75	3·75		56	2,600
14	Elgin, Petincodiac & Havelock	14·00	13·00	14 00		·40	60		2,240
15	Erie and Huron	41·50			41·50	3·50		50	2,240
16	Grand Southern	82·50			82·50			50	2,600
17	Grand Trunk.....	887·25							
	Buffalo and Lake								
	Huron	162·00							
	Georgian Bay and								
	Lake Erie.....	171·50							
	Montreal and Lake								
	Champlain Junc.	62·25							
	(Great West. Div.)								
	Great Western.....	539 53							
	London and Port								
	Stanley	23·66							
	Wellington, Grey								
	and Bruce.....	168 35							
	London, Huron &								
	Bruce	68 89	2591·42	302·89	2288·53	491·26	66	65 & 66	2,640
	Brantford, Norfolk								
	& Port Burwell.	34·74							
	(Midland Division)								
	Midland	165·75							
	Toronto and Nipis- sing	111·50							
	Grand Junction....	87·75							
	Whitby, Port Perry								
	and Lindsay.....	46·50							
	Victoria (Lindsay								
	to Haliburton)..	53 25							
	Madoc Junction to								
	Bridgewater.....	8·50							
18	Great Northern.....	7 84			7·84	·20		56	2,640
19	Hamilton and Northwestern..	176·30		35·25	141·05	21·06	56	56	2,640
	Carried forward	7502·45	267·00	451·14	7051·31	846·92			

of Roads, &c., for Year ended 30th June, 1885.

Nature of Rail Fastening.	No. of Grain Elevators.		No. of Level Crossings.	Number of overhead Bridges.	Height or overhead Bridges above rail level, feet.	Level crossings of other Railways.	Number of Junctions with other Railways.	Number of Junctions with Branch Lines.	Radius of sharpest curve, feet.	Number of feet per mile of heaviest gradient.	Gauge of Railway, feet and inches.	Number.	Remarks.
	Guarded.	Not Guarded.											
Fish plates		93					2			76	4-8 $\frac{1}{2}$	1	Under construction.
Fish plates.....		11					1		400	90	4-8 $\frac{1}{2}$	2	
do	5	83	4	21	4		2		2865	35	4-8 $\frac{1}{2}$	3	
do	2	352	10	19	10	11	4	{	1432 913	15 75	4-8 $\frac{1}{2}$	4 5	
Angle and fish plates...	3	21	779	20	16-4to21	26	28	15	882	79	4-8 $\frac{1}{2}$	6	Main line. Erie & Niagara line.
Fish plates.....		5							1000	60	4-8 $\frac{1}{2}$	7	
do and chairs...	1	7	1	16					1910	100	5-6	8	
do		94				4	2		955	105	4-8 $\frac{1}{2}$	9	
do		5					1		955	52-80	4-8 $\frac{1}{2}$	10	
do and chairs...	1	31				3	4		273	96	5-6	11	
do		13					1		900	60	4-8 $\frac{1}{2}$	12	
do		60	9	20			1		955	80	4-8 $\frac{1}{2}$	13	
Chairs		8					1		717	80	4-8 $\frac{1}{2}$	14	
Fish plates.....	1	48				2	2		819	45	4-8 $\frac{1}{2}$	15	
do						3	3		717	80	4-8 $\frac{1}{2}$	16	
Fish and angle plates .	10	63	2389	201	{ 15 6to 28-4 }	47	64	47	{ 1100 600 }	81	4-8 $\frac{1}{2}$	17	In Branch lines.
Fish plates.....		6					1		1270	17	4-8 $\frac{1}{2}$	18	Not in operat'n Operated jointly with North'n Ry. of Canada.
do	1	2	148	8	16 to 19 $\frac{1}{2}$	6	9	1	603	74	4-8 $\frac{1}{2}$	19	
.....	14	96	4132	253		105	133	67					

No. 2—SUMMARY STATEMENT OF

Number.	Name of Railway.	Length of Line. Miles.				Length of Siding.	Weight per Yard. Lbs.		Number of Ties to Mile.
		Completed. (Rails laid)	Under Construc- tion.	Iron Rails.	Steel Rails.		Iron Rails.	Steel Rails.	
	Brought forward	7502.45	267.00	451.14	7051.31	846.92			
20	Intercolonial	861.00	19.00		861.00	115.00		56, 57½, 67	2,650
21	International	81.66			81.66	3.50		56	2,260
22	Jacques Cartier Union	6.81			6.81	.50		60	2,640
23	Kent Northern	27.00		27.00		1.00			2,432
24	Kingston and Pembroke	112.00		21.00	91.00	17.00	50 to 84	56	2,640
25	Manitoba and North-Western	78.54	51.50		78.54	4.94		45 & 56	3,000
26	Massawippi Valley	34.00		2.00	32.00	1.00	56	50	2,400
27	Oxford to New Glasgow, N.S.		76.00						
28	Montreal and Sorel	44.67			44.67	3.33		56	2,640
29	Montreal & Vermont Junction	23.60			23.60	2.00		60	2,600
30	Napanees, Tamworth & Quebec	28.50			28.50	2.00		56	3,000
31	New Brunswick	174.00							
	New Brunswick & Canada	127.00		53.50	362.00	33.00	56	52 & 56	2,640
	St. John & Maine	92.00							
	Fredericton	22.50							
32	New Brunswick and Prince Edward Island	17.00	20.00		17.00	1.00		56	2,240
33	Northern Railway of Canada	209.74		64.28	145.46	59.06	56 & 58	56 & 60	2,640
34	Northern and Western of New Brunswick	67.00	40.00		67.00	2.00		56 & 61	2,600
35	Northern & Pacific Junction	10.00	101.25		10.00			56	2,640
36	North Shore	209.00		30.75	178.25	26.25	56	56	2,640
37	North-Western Coal & Navi- gation Co.		109.50						
38	Nova Scotia, Nictaux and At- lantic Central		73.00						
39	Pontiac and Pacific Junction	21.00			21.00	.50		56	2,640
40	Prince Edward Island	210.60		153.75	56.85	14.65	40	50 & 52	2,640
41	Quebec and Lake St. John	52.00	15.00		52.00	4.00		56	2,640
42	Quebec Central	154.00	40.00	81.00	73.00	10.00	56	56	2,640
43	Stanstead, Shefford & Cham- bly	43.00		36.00	7.00	5.50	60	60	2,400
44	South Eastern	152.00							
	Montreal, Portland & Boston	45.00		139.50	120.50	29.00	40, 56, 60	57½ & 60	3,000
	Lake Champlain & St. Lawrence Junction	63.00							
45	St. Lawrence and Ottawa	59.00		9.00	50.00	9.00	56	56, 57½, 75	2,640
46	St. Martin's and Upham	29.12		29.12			56		2,240
47	Thousand Islands	3.15			3.15	.61		56	3,000
48	Waterloo and Ma- gog	20.00		10.10	20.00	1.25	56	56	2,400
	Missisquoi Valley	10.10							
49	Western Counties	67.00		67.00		4.00	56		2,600
50	Windsor and Anna- polis	84.00		53.00	63.00		50 & 67	56	2,640
	Windsor Branch	32.00							
	Total	10773.44	812.25	1228.14	9545.30	1197.01			

Characteristics of Roads, &c.—*Concluded.*

Nature of Rail Fastening.	No. of Grain Elevators.		No. of Level Crossings.		Number of overhead Bridges.	Height of overhead Bridges above rail level, feet.	Level crossings of other Railways.	Number of Junctions with other Railways.	Number of Junctions with Branch Lines.	Radius of sharpest curve, feet.	Number of feet per mile of heaviest gradient.	Gauge of Railway, feet and inches.	Number.	Remarks.
	Guarded.	Not Guarded.	Guarded.	Not Guarded.										
.....	14	96	4132	253	.....	.....	105	133	67	.....	.....	.....	.....	.....
Angle plates, fish plates and scabbards	1	8	429	28	18½ to 35	2	15	12	694	65	4' 8½	20		
Fish plates. ....	.....	.....	27	.....	.....	.....	2	.....	1146	74	4' 8½	21		
do .....	.....	.....	3	.....	.....	.....	2	.....	800	45	4' 8½	22		
do .....	.....	.....	4	.....	.....	.....	2	1	1000	60	4' 8½	23		
Angle and fish plates. ....	.....	.....	54	5	16½ to 21½	3	8	9	955	79	4' 8½	24		
do .....	.....	.....	64	.....	.....	.....	1	.....	955	77	4' 8½	25		
Fish plates. ....	.....	.....	20	1	19	.....	2	.....	442	76	4' 8½	26		
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4' 8½	27	
Fish plates. ....	.....	.....	12	.....	.....	1	2	.....	2292	53	4' 8½	28		
do .....	.....	.....	51	1	17·5	.....	2	.....	.....	52	4' 8½	29		
Angle plates. ....	.....	.....	24	.....	.....	.....	1	.....	882	88	4' 8½	30		
Fish plates. ....	.....	.....	158	3	18	1	4	5	540	85	4' 8½	31		
do .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	32	Not completed.
do	2	2	155	8	19½	4	3	4	693	63	4' 8½	33		
do .....	.....	.....	.....	.....	.....	1	3	.....	955	70	4' 8½	31		
Angle plates .....	.....	.....	5	.....	.....	.....	1	.....	1433	53	4' 8½	35		
Fish plates.	2	134	1	19	12	2	3	800	60	4' 8½	36			
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3' 0	37	Under construction.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	38	do
Angle plates .....	.....	.....	19	.....	.....	.....	1	.....	1433	53	4' 8½	39		
Fish and angle plates. ....	.....	.....	955	2	17½	.....	.....	.....	396	90	3' 6	40		
do .....	.....	.....	21	.....	.....	.....	1	.....	574	132	4' 8½	41		
Fish plates. ....	.....	.....	26	.....	.....	1	5	1	882	76	4' 8½	42		
Nails and fish plates. ....	.....	.....	42	.....	.....	3	4	.....	.....	60	4' 8½	43		
Fish plates.	1	229	1	20·6	7	8	5	637	50	4' 8½	44			
Fish plates & scabbards ..	2	65	8	18	1	3	1	1146	53	4' 8½	45			
Beaves and fish plates ..	.....	23	.....	.....	.....	1	.....	717	129	4' 8½	46			
Angle plates .....	.....	8	.....	.....	.....	1	.....	660	84	4' 8½	47			
Fish plates.	1	1	.....	.....	1	1	1	574	80	4' 8½	48			
do .....	.....	.....	.....	.....	.....	.....	.....	600	84	4' 8½	49			
do .....	.....	69	1	33	.....	1	.....	693	75	4' 8½	50			
.....	17	112	6729	312	.....	.....	142	204	109	.....	.....	.....	.....

No. 3—SUMMARY STATEMENT of the different descriptions

Number.	Name of Railway.	Length of Line.		Number of Engines.		Number of Sleeping Cars.		Number of Palace or Drawing-room Cars.	
		Completed.	Under Construction.	Owned.	Hired.	Owned.	Hired.	Owned.	Hired.
1	Albert	51-00		3					
2	Atlantic and North-West.....		7-00						
3	Bay of Quinté and Navigation Co.....	3-50		2					
4	Canada Atlantic.....	134-80		5	3				
5	Canada Southern	362-44		125					
6	Canadian Pacific.....								
	Credit Valley								
	Manitoba South-Western Colonization....	3744-40	207-00	288	27	35	8		
	Ontario and Quebec.....								
	Toronto, Grey and Bruce.....								
7	Caraguet.....	20-00	40 00	1					
8	Carillon and Grenville.....	13-00		3					
9	Central Ontario.....	104-00		16					
10	Chatham Branch.....	9-00		2					
11	Cobourg, Peterboro' and Marmora.....	35 00		5					
12	Cumberland Railway and Coal Co.....	32-00		4					
13	Eastern Extension	79-75		9					
14	Elgin, Petittcodiac and Havelock.....	14-00	13-00	1					
15	Erie and Huron	41-50		4					
16	Grand Southern	62-50		5					
17	Grand Trunk.....	887-25							
	Buffalo and Lake Huron.....	162-00							
	Georgian Bay and Lake Erie.....	171-50							
	Montreal and Champlain Junction... 62-25								
	(Great Western Division) Great Western.....	539-53							
	London and Port Stanley.....	23-66							
	Wellington, Grey and Bruce.....	168-35							
	London, Huron and Bruce.....	68-89							
	Brantford, Norfolk and Port Burwell.. 34-74								
	(Midland Division) Midland.....	165-75							
	Toronto and Nipissing	111-50							
	Whitby, Port Perry and Lindsay.....	46-50							
	Grand Junction.....	87-75							
	Victoria (Lindsay to Haliburton). 53-25								
	Madoc Junction to Bridgewater..... 8-50								
18	Great Northern.....	7-84							
19	Intercolonial.....	861-00	19 00	163					
20	International.....	81-66		3					
21	Jacques Cartier Union.....	6-81							
22	Kent Northern	27-00		2					
23	Kingston and Pembroke.....	112-00		9					
24	Manitoba and North-Western.....	78-54	51-50	2	1				
25	Massawippi Valley.....	34-00							
26	Oxford to New Glasgow, N.S.....		76-00						
27	Montreal and Sorel.....	44-67							
28	Montreal and Vermont Junction.....	23 60							
29	Napanee, Tamworth and Quebec.....	28-50		2					
30	New Brunswick.....	174-00							
	New Brunswick and Canada.....	127-00							
	Fredericton.....	22 50							
	St. John and Maine	92-00							
31	New Brunswick and Prince Edward Island....	17-00	20-00	1					
	Carried forward.....	9056-43	433-50	1314	31	35	8		

of Rolling Stock, for Year ended 30th June, 1885.

Number of First Class Cars.		Number of Second Class and Emigrant Cars.		Number of Baggage, Mail and Express Cars.		Number of Cattle and Box Freight Cars.		Number of Flat-form Cars.		Number of Hopper and Dumping Cars.		Number.	Remarks.
Owued.	Hired.	Owued.	Hired.	Owued.	Hired.	Owued.	Hired.	Owued.	Hired.	Owued.	Hired.		
3				1		10		21				1	
1								11				2	
2												3	
36		21		24		2039	543	472		63		4	
												5	
91	9	74	12	48	13	2652	375	4309	91			6	{ 223 vans, tool cars, &c., owned by Company. 18 vans, tool cars, &c., under special trust.
						2		15				7	
3		3		4				4				8	
2	1		1	2	1	24		100				9	
1		1						1				10	
3				1		1		50		200		11	
1				1		2		24		80		12	
6		4		4		30		70		150		13	
		1										14	
7				2		10		18				15	
2		2		2		8		42				16	
334		206		170		12064		*4360				17	* Includes coal cars.
70		75		43		1529		1442		1828		18	Not in operation.
2				2		1		28				19	
												20	
1				1				14				21	Company own no rolling stock.
6				4		27		205				22	
2		2		1		57		45				23	
												24	
												25	Furnished by lessees (Passumpsic).
												26	
												27	Not in operation.
1				1		3		13				28	Furnished by lessees (Central Vermont)
												29	
16		22		10		190		390				30	
								10				31	Not completed.
590	10	411	13	321	14	19649	918	11644	91	2321			

13a-21₂

No. 3—SUMMARY STATEMENT of the different

Number.	Name of Railway.	Length of Line.		Number of Engines.		Number of Sleeping Cars.		Number of Palace or Drawing-room Cars.	
		Com- pleted.	Under Construc- tion.	Owned.	Hired.	Owned.	Hired.	Owned.	Hired.
	Brought forward	9056.43	433.50	1314	31	35	8		
32	Northern and North-Western.....	386.04		47				3	
33	Northern and Western of New Brunswick.....	67.00	40.00	6					
34	Northern and Pacific Junction.....	10.00	101.25						
35	North Shore	209.00		21					
36	North-West Coal and Navigation Co.....		109.50						
37	Nova Scotia, Nictaux and Atlantic Central...		73.00						
38	Pontiac Pacific Junction.....	21.00		1					
39	Prince Edward Island	210.69		21					
40	Quebec and Lake St. John.	52.00	15.00	8					
41	Quebec Central	154.00	40.00	9					
42	Stanstead, Shefford and Chambly.....	43.00		6					
43	South Eastern	152.00							
	Montreal, Portland and Boston	45.00							
	Lake Champlain and St. Lawrence Junction	63.00							
		260.00		30				2	
44	St. Lawrence and Ottawa	59.00		11					
45	St. Martin's and Upham.....	29.12		1	1				
46	Thousand Islands	3.15		1					
47	Waterloo and Magog	20.00			2				
	Missisquoi Valley.....	10.00							
48	Western Counties	67.00		4					
49	Windsor and Annapolis.....	84.00		10					
	Windsor Branch.....	32.00							
		116.00							
		10773.44	812.25	1490	34	35	8	4	

descriptions of Rolling Stock—*Concluded.*

Number of First Class Cars.		Number of Second Class and Emigrant Cars.		Number of Baggage, Mail and Express Cars.		Number of Cattle and Box Freight Cars.		Number of Platform Cars.		Number of Hopper and Dumping Cars.		Number.	Remarks.
Owued.	Hired.	Owued.	Hired.	Owued.	Hired.	Owued.	Hired.	Owued.	Hired.	Owued.	Hired.		
590	10	411	13	321	14	196	9	918	11644	91	2321	.....
26	...	16	...	22	.....	451	...	822	.....	.....	.....	32	Also 22 conductors' vans and 8 auxiliary and boarding cars.
2	...	2	...	.....	.....	10	.....	52	.....	.....	.....	33	Not in operation.
9	...	13	...	10	.....	257	.....	258	.....	.....	.....	34	Under construction.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	35	Also 1 excursion car.
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	36	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	37	
17	...	15	...	4	.....	178	.....	10	.....	.....	.....	38	Not in operation.
2	...	3	...	3	.....	8	.....	125	.....	.....	.....	39	
5	...	7	...	5	.....	75	.....	74	.....	.....	.....	40	36 miles in operation.
4	...	.....	...	2	.....	.....	.....	158	.....	.....	.....	41	
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	42	Operated by Central Vermont.
9	15	8	...	6	4	61	37	248	100	50	.....	43	
4	...	6	...	3	.....	97	.....	40	.....	.....	.....	44	
.....	1	1	1	.....	1	.....	.....	.....	.....	.....	.....	45	
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	46	
.....	2	.....	.....	.....	2	.....	10	.....	10	.....	.....	47	
2	...	2	...	2	.....	18	.....	5	.....	.....	.....	48	
5	...	5	...	4	.....	63	.....	7	.....	20	.....	49	
676	28	487	14	382	21	20867	1299	13560	201	2391	.....	

No. 4—SUMMARY STATEMENT of the Operations of the

Number.	Name of Railway.	Mileage.	TRAIN MILEAGE.			
			Passenger Trains.	Freight Trains.	Mixed Trains.	Total Train Mileage.
1	Albert	51-00	652	6,482	29,712	36,846
2	Bay of Quinté	3-50	7,273		4,326	11,599
3	Canada Atlantic	134-80	98,592	49,296	31,590	179,478
4	Canada Southern	362-44	1,014,369	1,859,476	130,703	3,004,548
5	Canadian Pacific					
	Credit Valley					
	Manitoba South-Western Colonization	3,348-20	1,760,365	2,639,368	943,528	5,343,261
	Ontario and Quebec					
	Toronto, Grey & Bruce					
6	Carillon and Grenville	13-00	9,900		1,400	11,300
7	Central Ontario	104-00	20,600	94,800	97,960	212,760
8	Chatham Branch	9-00			19,728	19,728
9	Cobourg, Peterboro' & Marmora	15-00			7,840	7,840
10	Cumberland Railway and Coal Co.	32-00		36,998	40,000	76,998
11	Eastern Extension	79-75	50,897	3,660	25,480	80,037
12	Elgin, Petittcodiac and Havelock	14-00			8,764	8,764
13	Erie and Huron	41-50			54,912	54,912
14	Grand Southern	82-50			58,645	58,645
15	Grand Trunk	887-25				
	Buffalo and Lake Huron	162-00				
	Georgian Bay and Lake Erie	171-50				
	Montreal and Lake Champlain					
	Junction	62-25				
	Great Western	539-53				
	London and Port Stanley	23-66				
	Wellington, Grey and Bruce	168-35				
	London, Huron and Bruce	68-89	2,591-42	3,964,182	7,066,163	2,248,586
	Brantford, Norfolk and Port					
	Burwell	34-74				
	Midland	165-75				
	Toronto and Nipissing	111-50				
	Whitby, Port Perry & Lindsay	46-50				
	Grand Junction	87-75				
	Victoria (Lindsay to Haliburton)	53-25				
	Madoc Junction to Bridgewater	8-50				
16	Intercolonial	861-00	965,051	3,027,455	fr'ht & mix'd	3,992,106
17	International	81-66		8,200	43,400	51,600
18	Jacques Cartier Union	6-81				
19	Kent Northern	27-00			17,982	17,982
20	Kingston and Pembroke	112-00	33,000	* 20,000	103,000	156,000
21	Manitoba and North-Western	78-54	1,115	2,261	24,781	28,157
22	Massawippi Valley	34-00	68,433	92,546	2,538	163,517
23	Montreal and Vermont Junction	23-60	61,488	123,380	5,486	190,754
24	Napanee, Tamworth and Quebec	28-50			39,532	39,532
25	New Brunswick	174-00				
	New Brunswick and Canada	127-00				
	Fredericton	22-50	415-50	229,230	145,107	274,461
	St. John and Maine	92-00				648,798
26	Northern and North-Western	386-04	425,484	387,862	185,704	999,050
27	North Shore	209-00	236,368	183,755	75,266	495,379
28	Prince Edward Island	210-60	81,864	168,014	fr'ht & mix'd	249,878
29	Quebec and Lake St. John	36-00	22,536	22,536	do	45,072
30	Quebec Central	154-00	89,151	87,780	21,799	198,730
31	Stanstead, Shefford and Chambly	43-00	37,327	26,324	11,647	75,298
	Carried forward	9589-36	9,177,677	16,051,663	4,508,760	29,738,100
		24				

Year and Mileage, Year ended 30th June, 1885.

Engine Mileage.	Total Number of Passen- gers Carried.	Tons of Freight of 2,000 lbs. Handled.	Average rate of Speed of Passenger Trains. Miles per hour.	Average rate of Speed of Freight Trains. Miles per Hour.	Number.	Remarks.
38,466	15,133	27,119	15	12	1	
11,599	8,757	16,594	15	10	2	
228,019	88,950	117,908	30	14	3	
3,888,537	453,029	2,475,550	35	15	4	
7,218,993	1,427,367	1,655,969	26	15	5	
11,600	12,586	800	25	18	6	
213,160	43,332	63,000	20	15	7	
19,728	9,095	10,123	25	.....	8	
8,030	2,498	15,747	15	.....	9	
76,998	12,518	263,561	15	15	10	
92,557	42,443	19,867	25	18	11	
9,860	2,386	6,790	12	.....	12	
62,047	58,713	31,875	25	18	13	
58,845	.....	5,663	20	.....	14	
16,921,760	4,575,499	5,760,600	27	12	15	
4,836,927	914,785	970,069	25	15	16	
51,600	21,249	29,672	14	10	17	
.....	.....	.....	.....	.....	18	No record kept, Company's revenue is derived from tolls on the vehicles hauled over its railway.
17,982	4,186	11,173	15	.....	19	
169,000	32,120	79,032	25	18	20	* Ballast trains.
35,249	7,751	13,747	23	15	21	
163,517	53,619	80,540	24	10	22	
197,754	100,701	684,316	30	12	23	
39,532	27,934	13,911	15	.....	24	
755,161	164,951	225,451	25	15	25	
1,291,889	555,040	582,598	30	18	26	
695,599	284,474	166,486	35	15	27	
311,443	130,423	57,346	20	14	28	
81,196	53,942	49,900	20	12	29	
218,660	70,016	82,460	25	15	30	
75,298	119,247	701,755	23	12	31	
37,783,806	9,292,774	14,219,622	.....	.....	.....

No. 4—SUMMARY STATEMENT of the Operations of the

Number.	Name of Railway.	Mileage.	TRAIN MILEAGE.			
			Passenger Trains.	Freight Trains.	Mixed Trains.	Total Train Mileage.
	Brought forward	9589·36	9,177,677	16,051,663	4,508,760	29,738,100
32	South Eastern..... 152 00	260·00	227,560	318,743	44,110	590,413
	Montreal, Portland and Boston 45 00					
	Lake Champlain and St. Lawrence Junction..... 63 00					
33	St. Lawrence and Ottawa.....	59·00	8,424	378	34,524	43,326
34	St. Martin's and Upham.. ..	29·12	.....	.....	13,500	13,500
35	Thousand Islands	3·15	3,189	.....	2,126	5,315
36	Waterloo and Magog	20 00	13,736	8,960	.....	22,696
	Missisquoi Valley	6 00				
37	Western Counties	67 00	.....	2,809	42,638	45,447
38	Windsor and Annapolis..... 84·00	116 00	80,869	.....	84,023	164,892
	Windsor Branch..... 32·00					
		10,149 63	9,511,455	16,382,553	4,729,681	30,623,689

Year and Mileage, Year ended 50th June, 1885—*Concluded.*

Engine Mileage.	Total Number of Passen- gers Carried.	Tons of Freight of 2,000 lbs. Handled.	Average rate of Speed of Passenger Trains. Miles per Hour.	Average rate of Speed of Freight Trains. Miles per Hour.	Number.	Remarks.
37,783,806	9,292,774	14,219,622				
590,413	196,824	305,376	30 & 22*	15	32	* Main and branch lines respectively.
79,232	22,540	25,334	22	14	33	For 8 months, ending 28th Feb., 1885. Op- erations from 1st March, included in Canadian Pacific Railway returns, under lease.
14,500	7,673	6,058	15	.....	34	
5,315	12,878	7,320	10	10	35	
25,014	8,826	16,808	20	14	36	{ Only 6 miles of Missisquoi Valley Rail- way in operation.
56,316	29,889	17,177	20	17	37	
194,638	101,165	61,576	22	14	38	
38,749,234	9,672,569	14,659,271				

No. 5—SUMMARY STATEMENT of Description of Freight Carried for Year ended 30th June, 1885.

Number.	Name of Railway.	Mileage.	Flour.		Grain.		Live Stock.		Lumber of all Kinds except Firewood.		Number.
			Barrels.	Tons.	Bushels.	Tons.	No.	Tons.	Feet.	Tons.	
1	Albert	51.00	7,025	702	10,469	173	821	326	6,001,800	9,380	1
2	Bay of Quinté and Navigation Co.	3.50	21,344	2,134	100,060	3,002	20	8	4,480,000	5,374	2
3	Canada Atlantic	134.80	18,820	1,882	139,333	4,180	2,430	1,350	46,080,000	69,121	3
4	Canada Southern	362.44	1,937,420	193,742	19,715,960	498,821	•249,705	78,033	•199,284,000	†298,926	4
5	Canadian Pacific										5
	Credit Valley										
	Manitoba South-Western Colonization										
	Ontario and Quebec	3,348.20	915,129	91,513	7,842,343	203,608	162,398	50,414	263,812,390	355,942	5
	Toronto, Grey and Bruce										
6	Carillon and Grenville	13.00					500	100			6
7	Central Ontario	104.00			66,700	1,980	452	140	3,470,000	4,511	7
8	Chatham Branch	9.00	2,240	224	560	8	240	120	189,000	240	8
9	Cobourg, Peterboro' and Marmora	15.00	23,072	2,307	17,898	447			10,788,760	14,389	9
10	Cumberland Railway and Coal Co.	32.00	8,615	861	3,600	60			12,852,000	16,098	10
11	Eastern Extension	79.75	28,885	2,888	5,200	88	5,272	815	•1,106,000	1,662	11
12	Elgin, Petricodiae and Havelock	14.00	1,532	153	813	14	45	3	4,221,000	6,331	12
13	Errie and Huron	41.50	13,911	1,391	247,501	6,563	2,064	532	1,816,000	3,275	13
14	Grand Southern	82.50	6,889	689	9,033	180	336	80	•732,000	1,098	14
15	Grand Trunk	887.25									
	Buffalo and Lake Huron	162.00									
	Georgian Bay and Lake Erie	171.50									
	Montreal and Champlain Junction	62.25									
	Great Western	539.53									
	London and Port Stanley	23.66									
	Wellington, Grey and Bruce	168.35									
	London, Huron and Bruce	68.89									
	Brantford, Norfolk and Port Burwell	34.74									
	Midland	165.75									
	Toronto and Nipissing	111.50									
	Whitby, Port Perry and Lindsay	46.50									
	Grand Junction	87.75									
	Victoria (Lindsay to Haliburton)	53.25									
	Madoc Junction to Bridgewater	8.50									
16	Intercolonial	861.00	907,102	90,710	729,707	15,610	65,513	13,980	137,387,675	171,734	16
17	International	81.66	9,911	991	42,428	818	518	293	12,644,320	18,967	17

No. 5.—SUMMARY STATEMENT of Description of Freight Carried for Year ended 30th June, 1885—Concluded.

Number.	Name of Railway.	Firewood.		Manu- factured Goods.		All other Articles.		Total Weight Carried.		Remarks.
		Cords.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Number.	
1	Albert.....	1,982	3,001	919	12,618	27,119	1			
2	Bay of Quinté and Navigation Co.....	310	614	935	4,527	16,594	2			
3	Canada Atlantic.....	3,336	3,500	28,400	9,475	117,908	3			
4	Canada Southern.....			16,776	1,393,252	2,475,550	4			Including firewood.
5	Canadian Pacific.....									
	Credit Valley.....									
	Manitoba North-Western Colonization.....	73,577	118,583	393,219	443,290	1,655,969	5			
	Ontario and Quebec.....									
	Toronto, Grey and Bruce.....									
6	Carillon and Grenville.....				700	800	6			
7	Central Ontario.....	4,000	6,000	720	49,425	63,000	7			
8	Chatham Branch.....	23	36		7,412	10,123	8			
9	Cobourg, Peterboro' and Marmora.....	450	900		15	15,747	9			
10	Cumberland Railway and Coal Co.....			2,505	234,067	263,561	10			
11	Eastern Extension.....			3,082	11,332	19,867	11			
12	Elgin, Petricodiac and Havelock.....			174	115	6,790	12			
13	Erie & Huron.....	2,183	2,987	9,025	8,102	31,875	13			
14	Grand Southern.....	*322	535	967	2,134	5,663	14			
15	Grand Trunk.....									
	Buffalo and Lake Huron.....									
	Georgian Bay and Lake Erie.....									
	Montreal and Champlain Junction.....									
	Great Western.....									
	London and Port Stanley.....									
	Wellington, Grey and Bruce.....									
	London, Huron and Bruce.....	98,673	182,544	456,239	2,616,388	5,760,600	15			
	Brantford, Norfolk and Port Burwell.....									
	Midland.....									
	Toronto and Nipissing.....									
	Whitby, Port Perry and Lindsay.....									
	Grand Junction.....									
	Victoria (Lindsay to Haliburton).....									
	Madoc Junction to Bridgewater.....									
16	Intercolonial.....	8,400	19,600	919,960	450,827	570,000	16			

The various kinds of freight were only returned for 6 months, but have here been estimated for 12 months, in proportion to total tonnage for whole year.

†Including manufactured articles.

†Including all other articles.

The various kinds of freight were only returned for 6 months, but have here been estimated for 12 months, in proportion to total tonnage for whole year.

For 8 months, ending 28th February, 1885, since which freight carried is included in Canadian Pacific Railway return.

20 Kingston and Remorse	5,034	15,130	17,930	6,401	13,747 21
21 Manitoba and North-Western	81	162	.....	52,550	81,540 22
22 Mississippi Valley .....	.....	.....	6,200	288,885	684,316 23
23 Montreal and Vermont Junction .....	.....	.....	30,624	1,609	13,911 24
24 Napance, Vanworth and Quebec	5,230	4,936	4,619	.....	.....
25 New Brunswick	2,760	4,600	160,000	10,345	235,451 25
New Brunswick and Canada .....	.....	.....	.....	.....	.....
Fredericton .....	.....	.....	.....	.....	.....
26 St. John and Maine	37,384	53,076	.....	†153,437	582,598 26
27 Northern and North-Western	16,488	27,480	19,625	79,227	166,483 27
28 Prince Edward Island	3,059	5,844	†30,231	.....	57,346 28
29 Quebec and Lake St. John	21,600	29,000	1,500	6,920	49,900 29
30 Quebec Central .....	.....	.....	3,100	28,295	82,460 30
31 Stanstead, Shefford and Chambly	2,961	5,477	32,888	295,479	701,755 31
32 South-Eastern .....	.....	.....	30,588	167,476	305,376 32
Montreal, Portland and Boston .....	.....	.....	.....	.....	.....
Lake Champlain and St. Lawrence Junction .....	.....	.....	.....	.....	.....
33 St. Lawrence and Ottawa .....	.....	.....	3,722	11,195	25,334 33
34 St. Martin's and Upham	170	243	804	218	6,058 34
35 Thousand Islands .....	.....	.....	6,045	1,064	7,320 35
36 Waterloo and Magog	840	1,265	2,663	5,375	16,808 36
Missisquoi Valley .....	.....	.....	.....	.....	.....
37 Western Counties	1,869	2,983	2,236	336	17,177 37
38 Windsor and Annapolis	1,347	1,918	12,811	28,088	61,576 38
Windsor Branch .....	.....	.....	.....	.....	.....
297,499	490,297	1,492,602	6,418,179	14,659,271	.....

NOTE.—Items marked with an asterisk have been estimated from the tonnage.

No. 6.—SUMMARY STATEMENT OF Earnings, for Year ended 30th June, 1885.

Number.	Name of Railway.	Mileage.	Passenger Traffic.		Freight Traffic.		Mails and Express Freight.		Other Sources.		Total.		Remarks.
			\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	
1	Albert.....	51-00	7,038	44	14,117	16	1,497	60	194	20	22,847	40	
2	Bay of Quinté and Navigation Co.....	3-50	1,665	08	6,830	22	1,269	43			9,754	73	
3	Canada Atlantic.....	134-80	76,527	78	114,160	48	8,944	06			199,632	32	
4	Canada Southern.....	362-44	867,312	61	2,466,825	12	102,042	61	4,193	84	3,440,374	18	
5	Canadian Pacific.....												
	Credit Valley.....												
	Manitoba South-Western Colonization.....	3348-20	2,479,894	21	3,898,725	36	254,462	26	295,787	46	6,928,869	29	
	Ontario and Quebec.....												
	Toronto, Grey and Bruce.....												
6	Carillon and Grenville.....	13-00	2,865	32	1,032	43					3,898	35	
7	Central Ontario.....	104-00	28,652	32	68,340	48	1,672	33			98,665	13	
8	Chatham Branch.....	9-06	2,107	41	10,589	71	1,186	95	5,959	48	19,843	55	
9	Cobourg, Peterboro' and Marmora.....	15-00	998	90	9,879	42					10,878	32	
10	Cumberland Railway and Coal Co.....	32-00	6,318	27	67,187	79	892	87			74,398	93	
11	Eastern Extension.....	79-75	37,658	39	25,522	75	9,868	37			73,050	01	
12	Elgin, Petricodiac and Havelock.....	14-00	763	44	4,563	32	388	56			5,715	32	
13	Erie and Huron.....	41-50	23,558	55	24,231	86	3,012	59	3	00	50,806	00	
14	Grand Southern.....	82-50	16,590	00	14,680	00					31,150	00	
15	Grand Trunk.....	887-25											
	Buffalo and Lake Huron.....	162-00											
	Georgian Bay and Lake Erie.....	171-50											
	Montreal and Champlain Junction.....	62-25											
	Great Western Division—												
	Great Western.....	539-53											
	London and Port Stanley.....	23-66											
	Wellington, Grey and Bruce.....	168-35											
	London, Huron and Bruce.....	68-89											
	Brantford, Norfolk and Port Barwell.....	34-74											
	Midland Division—												
	Midland.....	165-75											
	Toronto and Nipissing.....	111-50											
			4,752,448	49	9,110,376	96	545,501	33	69,531	89	14,477,868	77	

Derived from tolls on cars
of other companies.

Whitby, Port Perry & Lindsay. 46 50	861 00	709,927 24	1,516,528 43	141,637 98	2,368,153 65
Grand Junction..... 87 75	81 66	17,521 11	38,392 92	2,691 64	58,505 67
Victoria(Lindsay to Haliburton) 53 25	6 81	3,686 39	28,466 91	.....	28,466 91
Madoc Junction to Bridgewater 8 50	27 00	28,668 07	10,080 51	.....	14,246 42
16 Intercolonial..... 174 00	112 00	12,776 50	77,690 09	479 52	124,693 45
17 International..... 127 00	78 54	30,226 31	30,226 31	6,796 81	45,252 01
18 Jacques Cartier Union..... 92 00	21 00	54,794 41	88,299 79	1,541 48	146,066 10
19 Kent Northern..... 174 00	34 00	47,734 77	109,366 83	1,000 00	162,605 60
20 Kingston and Pembroke..... 127 00	23 60	9,619 06	9,630 85	.....	20,805 05
21 Manitoba and North-Western..... 92 00	28 50	208,729 26	377,477 73	26,112 39	614,968 58
22 Mississippi Valley..... 127 00	415 50	418,605 60	843,621 79	2,649 20	.....
23 Montreal and Vermont Junction..... 127 00	386 04	289,632 41	272,157 98	.....	1,340,316 45
24 Napanee, Tamworth and Quebec..... 127 00	209 00	66,054 32	74,213 84	5,789 71	584,132 22
25 New Brunswick..... 127 00	210 60	15,529 08	44,519 02	448 90	158,588 06
New Brunswick and Canada..... 127 00	36 00	59,078 78	106,374 32	.....	61,381 54
Fredericton..... 92 00	154 00	22,696 62	47,956 41	5,850 34	180,419 17
St. John and Maine..... 92 00	43 00	146,520 20	281,200 44	.....	73,816 47
26 Northern and North-Western..... 92 00	260 00	16,932 76	23,951 49	14,579 28	460,384 53
27 North Shore..... 92 00	59 00	3,901 23	3,542 73	2,872 18	47,742 84
28 Prince Edward Island..... 92 00	29 12	3,007 31	3,615 80	.....	7,443 96
29 Quebec and Lake St. John..... 92 00	3 15	5,018 07	8,702 15	.....	7,884 45
30 Quebec Central..... 92 00	26 00	26,875 46	16,138 04	.....	14,815 09
31 Stanstead, Shefford and Chambly..... 92 00	67 00	88,239 15	112,801 04	361 41	46,865 68
32 South Eastern..... 92 00	116 00	10,559,796 11	19,962,058 48	885 57	212,173 11
Montreal, Portland and Boston..... 45 00	10,149 63	.....	.....	422,306 83	32,227,469 31
Lake Champlain and St. Lawrence Junction..... 63 00	.....	.....	.....	.....	.....
33 St. Lawrence and Ottawa..... 92 00	.....	.....	.....	.....	.....
34 St. Martin's and Upham..... 92 00	.....	.....	.....	.....	.....
35 Thousand Islands..... 92 00	.....	.....	.....	.....	.....
36 Waterloo and Magog..... 20 00	.....	.....	.....	.....	.....
Missisquoi Valley..... 6 00	.....	.....	.....	.....	.....
37 Western Counties..... 81 00	.....	.....	.....	.....	.....
38 Windsor and Annapolis..... 32 00	.....	.....	.....	.....	.....
Windsor Branch..... 32 00	.....	.....	.....	.....	.....

For 8 months ending 28th
October, 1885, since
which earnings includ-
ed in Canadian Pacific
Railway return.

No. 7—SUMMARY STATEMENT of Operating Expenses, for Year ended 30th June, 1885.

Number.	Name of Railway.	Mileage.	Maintenance of Line, Buildings, &c		Working and Repairs of Engines.		Working and Repairs of Cars.		General Operating Expenses.		Total.	Remarks.
			\$	cts.	\$	cts.	\$	cts.	\$	cts.		
1	Albert.....	51 00	9,968	40	8,254	26	2,211	17	5,304	31	25,738 14	
2	Bay of Quinté and Navigation Company.....	3 50	2,155	15	3,876	05	30	81	3,821	63	9,883 64	
3	Canada Atlantic.....	134 80	40,764	28	35,688	87	4,815	67	95,240	33	176,509 15	
4	Canada Southern.....	362 44	561,225	06	691,505	68	237,537	04	1,133,279	13	2,623,546 91	
5	Canadian Pacific.....											
	Orebit Valley.....											
	Manitoba South-Western Colonization.....	3,348 20	793,233	81	1,761,784	30	347,655	05	1,654,846	57	4,557,519 73	
	Ontario and Quebec.....											
	Toronto, Grey and Bruce.....											
6	Carillon and Grenville.....	13 00	600	00	648	19	200	00	3,088	67	4,536 86	
7	Central Ontario.....	104 00	27,791	74	30,177	68	4,839	27	18,597	69	81,406 36	
8	Chatham Branch.....	9 00	2,442	00	3,886	00	50	00	1,420	00	7,798 00	
9	Cobourg, Peterboro' and Marmora.....	15 00	1,865	00	4,367	00	320	00	5,334	00	11,866 00	
10	Cumberland Railway and Coal Company.....	32 00	9,886	16	16,418	68	1,318	82	4,584	99	32,008 65	
11	Eastern Extension.....	79 75	25,086	31	18,621	87	4,181	69	30,383	78	78,273 65	
12	Elgin, Pettoodiac and Havelock.....	14 00	1,320	26	1,655	17	86	68	1,225	01	4,287 04	
13	Erie and Huron.....	41 50	6,569	48	11,478	41	383	77	13,341	03	31,772 69	
14	Grand Southern.....	82 50									35,000 00	From previous return of 1884. No return for this year.
15	Grand Trunk.....											
	Buffalo and Lake Huron.....	887 25										
	Georgian Bay and Lake Erie.....	162 00										
	Montreal and Champlain Junction.....	171 50										
	Great Western Division—	62 25										
	Great Western.....	539 53										
	London and Port Stanley.....	23 66										
	Wellington, Grey and Bruce.....	168 35										
	London, Huron and Bruce.....	68 89										
	Brantford, Norfolk and Port Burwell.....	34 74										
	Midland Division—											
	Midland.....	165 75										
	Toronto and Nipissing.....	111 50										
											10,716,448 80	

No. 8—SUMMARY OF ACCIDENTS

Number.	Name of Railway.	Mileage.	Passengers, Employés or Others.	Fell from Cars or Engines.		Jumping on or off Trains or Engines when in motion.		At work on or near Track making up Trains.	
				Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
1	Albert	51.00	Employés.....	.....	.....	.....	.....	.....	.....
2	Bay of Quinté and Navigation Co.	3.50	Others.....	.....	1	.....	.....	.....	.....
3	Canada Atlantic.....	134.80	Employés.....	.....	.....	.....	.....	.....	.....
4	Canada Southern	362.44	{ Passengers.....	.....	.....	.....	1	.....	.....
			{ Employés.....	2	7	.....	.....	.....	.....
			{ Others.....	2	1	.....	.....	.....	.....
5	Canadian Pacific.....	3,343.20	{ Passengers.....	1	.....	.....	2	.....	.....
	Credit Valley		{ Employés.....	5	11	2	9	.....	6
	Manitoba South-Western Colonization...		{ Others.....	1	.....	1	1	.....	.....
	Ontario and Quebec.....								
	Toronto, Grey and Bruce.....								
6	Carillon and Grenville.....	13.00	.....	.....	.....	.....	.....	.....	.....
7	Central Ontario.....	104.00	{ Passengers.....	.....	.....	.....	.....	.....	.....
			{ Employés.....	.....	.....	.....	.....	.....	.....
8	Eastern Extension.....	.....	Others.....	.....	.....	.....	.....	.....	.....
9	Grand Southern.....	82.60	Others.....	.....	.....	.....	.....	.....	.....
10	Grand Trunk.....	2,591.42	.....	.....	.....	.....	.....	.....	.....
	Buffalo and Lake Huron.....								
	Georgian Bay and Lake Erie.....								
	Montreal and Champlain Junction								
	(Great Western Division) Great Western								
	London and Port Stanley.....								
	Wellington, Grey and Bruce.....		{ Passengers.....	2	2	1	16	.....	.....
	London, Huron and Bruce.....		{ Employés	4	43	.....	10	2	6
	Brantford, Norfolk and Port Burwell.....		{ Others.....	5	5	3	5	.....	.....
	(Midland Division) Midland.....								
	Toronto and Nipissing.....								
	Whitby, Port Perry and Lindsay.....								
	Grand Junction.....								
	Victoria (Lindsay to Haliburton.....								
	Madoc Junction to Bridgewater.....								
11	Intercolonial.....	861.00	{ Passengers.....	.....	1	.....	2	.....	.....
			{ Employés	5	15	.....	7	.....	6
			{ Others.....	.....	.....	.....	1	.....	.....
12	Kingston and Pembroke.....	112.00	{ Employés	1	.....	.....	.....	.....	.....
			{ Others.....	.....	.....	.....	.....	.....	.....
13	Montreal and Vermont Junction.....	23.60	Others.....	.....	.....	.....	.....	.....	.....
14	Napanee, Tamworth and Quebec.....	28.50	{ Employés .....	.....	.....	.....	.....	.....	.....
			{ Others.....	.....	.....	.....	.....	.....	.....
15	New Brunswick.....	174.00	{ Passengers.....	.....	.....	.....	1	.....	.....
	New Brunswick and Canada.....	127.00		.....	.....	.....	.....	.....	.....
	Fredericton	22.50		1	.....	.....	.....	.....	.....
	St. John and Maine.....	92.00		.....	.....	.....	.....	.....	.....
16	Northern and North-Western.....	386.04	{ Passengers.....	.....	1	1	.....	.....	.....
			{ Employés	1	1	.....	1	.....	.....
			{ Others.....	.....	.....	.....	.....	.....	.....
17	North Shore.....	209.00	{ Passengers.....	.....	1	.....	.....	.....	.....
			{ Others.....	.....	.....	.....	.....	.....	.....
18	Prince Edward Island	210.60	{ Employés	1	2	.....	.....	.....	.....
19	Quebec and Lake St. John.....	36.00	{ Employés .....	.....	.....	.....	.....	.....	.....
20	Quebec Central	154.00	{ Employés .....	.....	.....	.....	.....	.....	.....
21	Stanstead, Shefford and Chambly.....	43.00	.....	.....	.....	.....	.....	.....	.....
22	South-Eastern.....	162.00	{ Employés .....	.....	.....	.....	.....	.....	.....
	Montreal, Portland and Boston.....	45.00		3	.....	.....	.....	.....	.....
	Lake Champlain & St. Lawrence..	63.00		.....	.....	.....	.....	.....	.....
23	Thousand Islands.....	3.15	Employés .....	.....	.....	.....	.....	.....	.....
				34	91	8	56	2	18

for Year ended 30th June, 1885.

Putting Arms or Heads out of Windows		Coupling Cars.		Collisions, or by Trains thrown from Track.		Walking, standing, lying or being on Track.		Ex-plosions.		Striking bridges.		Other Causes.		Totals.		Number.	Remarks.)
Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.		
				1										1		1	
	1													1		2	
					10									1		3	
			10	2	3	2	3	1		1	2	9		8	34	4	
						4	2							6	3		
				1	9		1							2	12		
		1	54	2	13	2		1	1			18	13	13	112	5	
				1	4	8	12					2	8	13	25		
					2										2	6	
			2												2	7	
						2	1							2	1	8	
						1								1		9	
	2	6	139	4	21 8 2	1 8 41	2 7 28			8	2	14	4 26 49	41 237 40		10	
		1	51	3	5 3 1	1 5 1	4 7					23	10 5 2 1	8 109 9 1		11	
			1			1								1		12	
			5			1						2	1	2		13	
							1							5 1		14	
			2										1	1 3 1		15	
							1							1 1 4 1		16	
			11			4	1							1 1 1		17	
					2	1							1	1 4		18	
			1										1	1		19	
												1				20	
																21	
														3		22	
			1												1	23	
3	8	277	14	83	83	70	2	1	9	7	75	157	684				

No. 9.—Lines of Railway owned by Coal and Iron Mines, 30th June, 1885.

Name.	Length of Rail- way.	Gauge.	Number of En- gines.	Number of Wag- gons.	Remarks.										
NOVA SCOTIA.															
Intercolonial Coal Mining Co.															
Granton Line.....	7 00	4 8½	} 2	88											
Stellarton Branch.....	3 00	4 8½													
Nova Scotia Coal Co.....	6 00	5 6	2	75	Two flat cars and one caboose. Cars furnished by Intercolonial Railway.										
Vale Coal and Iron Co.....	6 00	4 8½	2											
Acadia Coal Co.....	3 00	4 8½	2	2											
Steel Company of Canada. {	11 00	4 8½	3	38											
	3 00	3 0	2	27											
Albion Mines.....	6 00	4 8½	4	323											
	45 00		17	553											
CAPE BRETON.															
New Campbellton.....	1 25	3 6	1	40											
Glace Bay.....	50	4 8½	Engines and cars used are those of the Inter- national Co.										
General Mining Association—															
Sydney.....	4 80	4 8½	2	190											
Victoria... ..	5 80	4 8½	1	50											
Sydney and Louisburg.....	40 50	3 0	3	165											
Gowrie.....	1 75	3 6	1	110											
International.....	13 00	4 8½	3	130	Also two passenger cars and six flat cars.										
Lingan.....	1 00	3 6	1	50											
Caledonia.....	2 25	4 8½	1	70											
	70 85		13	805											
<table><tr><td>Gauge.</td><td>Miles.</td></tr><tr><td>5 ft. 6 in.</td><td>6 00</td></tr><tr><td>4 " 8½ "</td><td>36 00</td></tr><tr><td>3 " 0 "</td><td>3 00</td></tr><tr><td>Total.....</td><td>45 00</td></tr></table>						Gauge.	Miles.	5 ft. 6 in.	6 00	4 " 8½ "	36 00	3 " 0 "	3 00	Total.....	45 00
Gauge.	Miles.														
5 ft. 6 in.	6 00														
4 " 8½ "	36 00														
3 " 0 "	3 00														
Total.....	45 00														
<table><tr><td>Gauge.</td><td>Miles.</td></tr><tr><td>4 ft. 8½ in.</td><td>26 35</td></tr><tr><td>3 " 6 "</td><td>4 00</td></tr><tr><td>3 " 0 "</td><td>40 50</td></tr><tr><td>Total.....</td><td>70 85</td></tr></table>						Gauge.	Miles.	4 ft. 8½ in.	26 35	3 " 6 "	4 00	3 " 0 "	40 50	Total.....	70 85
Gauge.	Miles.														
4 ft. 8½ in.	26 35														
3 " 6 "	4 00														
3 " 0 "	40 50														
Total.....	70 85														

No. 10—STATEMENT of Aid granted to Railways—Constructed and under construction—by Governments, 30th June, 1885.

Name of Railway.	Loan.	Total.	Bonus.	Total.	Subscription to Shares or Bonds.	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
DOMINION GOVERNMENT.						
Canada Central			1,525,250 00			
Canadian Pacific	29,880,912 00		54,313,635 00			
Caraguet			192,000 00			
Eastern Extension			1,284,311 97			
Grand Trunk	15,142,633 33		25,088 00			
Great Northern			43,627,594 79			
Intercolonial			152,806 00			
International			48,000 00			
Kingston and Pembroke			89,500 00			
Napanee, Tamworth and Quebec			118,400 01			
New Brunswick and Prince Edward Island			128,000 00			
Northern and Western of New Brunswick			1,330,000 00			
Northern and Pacific Junction			* 379,657 00			
Oxford to New Glasgow			† 951,000 00			
Quebec, Montreal, Ottawa and Occidental, Quebec to Montreal			† 1,440,000 00			
do do			272,000 00			
Portiac Pacific Junction			3,731,312 56			
Prince Edward Island			464,000 00			
Quebec and Lake St. John			211,200 00			
Quebec Central			2,656 00			
Toronto, Grey and Bruce				110,283,505 32		
		45,023,545 33				
ONTARIO GOVERNMENT.						
Canada Atlantic			270,000 00			
Canada Central			1,479,000 00			
				1,749,000 00		
Carried forward						

* \$155,657 represents an annuity of \$14,000 for 15 years.

† Dominion Government pays to the Quebec Government 5 per cent. per annum on these two amounts.

No. 10—STATEMENT of Aid granted to Railways by Governments—*Concluded.*

Name of Railway.	Loan.	Total.	Bonus.	Total.	Subscription to Shares or Bonds.	Total.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Brought forward.....						
ONTARIO GOVERNMENT— <i>Concluded.</i>						
Canada Southern			147,835 65			
Central Ontario			126,500 00			
Cobourg, Peterboro' and Marmora	26,000 00		18,740 00			
Credit Valley.....			531,000 00			
Erie and Huron			83,000 00			
Grand Junction			182,500 00			
Georgian Bay and Lake Erie			336,000 00			
Hamilton and North-Western			565,020 00			
Kingston and Pembroke			456,493 00			
London, Huron and Bruce			178,630 08			
Midland			168,350 20			
Northern			116,188 00			
Toronto and Nipissing			105,212 00			
Lake Simcoe Junction			53,000 00			
Toronto, Grey and Bruce			376,282 00			
Victoria			312,000 00			
Wellington, Grey and Bruce			241,276 00			
Whitby, Port Perry and Lindsey			94,557 59			
		26,000 00		5,920,984 52		
QUEBEC GOVERNMENT.						
International.....			391,122 02			
Lake Champlain and St. Lawrence.....			380,000 00			
Lévis and Kennebec.....						
Missisquoi Valley			228,000 00			
Montreal, Portland and Boston			197,582 00			
Pontiac Pacific Junction			510,900 00			
Quebec and Lake St. John			850,000 00			
Quebec Central			681,250 00			

Quebec, Montreal, Ottawa and Occidental, "Quebec to Montreal"	2,546,000 00																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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* Included in Quebec Central.
† Granted to late European and North American Railway.

No. 10—STATEMENT of Aid granted to Railways by Municipalities, 30th June, 1885.

Municipalities.	Name of Railway.	Loan.	Total.	Bonus.	Total.	Subscriptions to Shares or Bonds.	Total.
		\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
ONTARIO.							
Deseronto	Bay of Quinté and Navigation Company .....	.....	.....	5,000 00	5,000 00	.....	.....
Various Municipalities	Buffalo and Lake Huron .....	.....	.....	966,000 00	966,000 00	.....	.....
Township of Cambridge	Canada Atlantic .....	.....	.....	20,000 00	.....	.....	.....
City of Ottawa	do .....	.....	.....	100,000 00	120,000 00	.....	.....
Renfrew	Canada Central .....	.....	.....	.....	.....	30,000 00	.....
Horton	do .....	.....	.....	.....	.....	7,500 00	.....
Admaston	do .....	.....	.....	.....	.....	5,000 00	.....
County of Elgin	Canada Southern .....	.....	.....	200,000 00	.....	.....	.....
Township of Townsend	do .....	.....	.....	30,000 00	.....	.....	.....
do Durham	do .....	.....	.....	15,000 00	.....	.....	.....
do Anderton	do .....	.....	.....	15,000 00	.....	.....	.....
Town of St. Thomas	do .....	.....	.....	25,000 00	.....	.....	.....
Township of Malden	do .....	.....	.....	15,000 00	.....	.....	.....
Town of Amherstburg	do .....	.....	.....	15,000 00	.....	.....	.....
South Norwich	do .....	.....	.....	7,500 00	.....	.....	.....
Northumberland and Durham	Cobourg, Peterboro' and Mar- mora .....	.....	.....	113,500 00	322,500 00	.....	.....
Trenton Village	Central Ontario .....	.....	.....	10,000 00	113,500 00	.....	.....
Wellington Village	do .....	.....	.....	2,500 00	.....	.....	.....
Town of Picton	do .....	.....	.....	21,000 00	.....	.....	.....
County of Prince Edward	do .....	.....	.....	60,000 00	.....	.....	.....
do Oxford	Credit Valley .....	.....	.....	200,000 00	.....	.....	.....
do Wellington	do .....	.....	.....	135,000 00	.....	.....	.....
do Waterloo	do .....	.....	.....	110,000 00	.....	.....	.....
do Peel	do .....	.....	.....	75,000 00	.....	.....	.....
do Halton	do .....	.....	.....	70,000 00	93,500 00	.....	.....
						42,500 00	

City of Toronto.....	do	350,000 00			
do St. Thomas.....	do	50,000 00			
Town of Milton.....	do	30,000 00			
do Brampton.....	do	20,000 00			
do Ingersoll.....	do	10,000 00			
do Orangeville.....	do	15,000 00			
Village of Streetsville.....	do	20,000 00			
County of Kent.....	Erie and Huron.....	1,085,000 00			
Town of Chatham.....	do	155,000 00			
do Dresden.....	do	30,000 00			
do Blenheim.....	do	18,000 00			
Village of Wallaceburg.....	do	11,000 00			
Township of Woodhouse.....	Georgian Bay and Lake Erie.....	225,000 00			
Town of Simcoe.....	do	15,000 00			
Township of South Norwich.....	do	10,000 00			
do North do.....	do	40,000 00			
Town of Woodstock.....	do	25,000 00			
Township of East Oxford.....	do	25,000 00			
do Woodstock.....	do	60,000 00			
Town of Woodstock.....	do	120,000 00			
do Stratford.....	do	40,000 00			
County of Perth.....	Township of Mornington.....	10,000 00			
do Elma.....	do	15,000 00			
Town of Listowel.....	do	10,000 00			
Township of Wallace.....	do	30,000 00			
Town of Palmerston.....	do	25,000 00			
Township of Minto.....	do	20,000 00			
Town of Harrison.....	do	80,000 00			
Township of Normanby.....	do	65,000 00			
do Bentwick.....	do	20,000 00			
do Brant.....	do	45,000 00			
do Elderslie.....	do	45,000 00			
do Arran.....	do	43,000 00			
do Amabel.....	do	32,000 00			
do Kippel.....	do	10,000 00			
do Albermarle.....	do	22,000 00			
Town of Mount Forest.....	do	60,000 00			
Township of Egremont.....	do	20,000 00			
do Glenelg.....	do	32,000 00			
Town of Durham.....	do	929,000 00			
City of Belleville.....	Grand Junction.....	150,000 00			
Village of Stirling.....	do	5,000 00			
Township of Rawdon.....	do	15,000 00			
	Carried forward.....	170,000 00			
		3,959,500 00			
					42,500 00

do	Goderich.....	do	do	15,000 00		
do	E. Wawanosh	do	do	25,000 00		
do	Hallet.....	do	do	25,000 00		
do	Tuckersmith	do	do	10,000 00		
do	Turnberry	do	do	5,000 00		
do	Morris	do	do	10,000 00		
do	Stanley	do	do	10,000 00		
do	Village of Clinton..	do	do	20,000 00		
do	Exeter.....	do	do	10,000 00		
do	Kincardine and Wigan	do	do	9,000 00		
City of London ..				100,000 00	311,500 00	
Township of Thorah		Midland		50,000 00		
Town of Port Hope..		do		30,000 00		
Township of Orillia and Matche-						
dash.....		do		12,500 00		
Town of Orillia		do		12,500 00		
Township of Tay		do		21,370 85		
Village of Omenee		do		2,000 00		
Township of Mara		do		12,500 00		
Town of Peterborough		do		4,000 00	144,870 85	
do Napanee		Napanee, Tamworth and Quebec		30,000 00		
Village of Newburgh		do		7,500 00		
Township of Oamden.....		do		30,000 00		
do Sheffield.....		do		15,000 00	82,500 00	
City of Toronto		Northern		100,000 00		
County of Simcoe.....		do		30,000 00	190,000 00	
Town of Barrie.....		do		12,500 00	200,000 00	
do Orillia.....		do				
Townships of Collingwood, Eu-		do		99,480 00		
phrasia and St. Vincent.....		do				
City of Ottawa		St. Lawrence and Ottawa.		200,000 00	241,980 00	
Town of Prescott		do		100,000 00		
do Gananoque.....				300,000 00		
City of Toronto.....		Thousand Islands				
Township of Scarborough'		Toronto and Nipissing				
do Markham.....		do				
do Uxbridge.....		do				
do Scott.....		do				
do Brock.....		do				
do Eldon.....		do				
		Carried forward.....		344,000 00	6,129,946 85	
						390,000 00
						90,000 00
						672,500 00

* Portion of Toronto and Nipissing Division.

No. 10—STATEMENT of Aid granted to Railways by Municipalities—Continued.

Municipalities.	Name of Railway.	Loan.	Total.	Bonus.	Total.	Subscrip- tion to Shares or Bonds.	Total.
		\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
ONTARIO—Continued.							
Township of Bexley	Brought forward . . . . .	.....	300,000 00	344,000 00	6,129,946 85	.....	672,500 00
do Somerville.....	Toronto and Nipissing .....	.....	.....	15,000 00	.....	.....	.....
Townships of Luxton, Digby and Langford	do .....	.....	.....	15,000 00	.....	.....	.....
Town of Uxbridge	do .....	.....	.....	12,500 00	.....	.....	.....
				2,000 00	388,500 00		
Albion	Toronto, Grey and Bruce .....	.....	.....	40,000 00	.....	.....	.....
Caledon	do .....	.....	.....	45,000 00	.....	.....	.....
Mono	do .....	.....	.....	45,000 00	.....	.....	.....
Amaranth	do .....	.....	.....	30,000 00	.....	.....	.....
Arthur	do .....	.....	.....	35,000 00	.....	.....	.....
Orangeville	do .....	.....	.....	15,000 00	.....	.....	.....
Mount Forest	do .....	.....	.....	20,000 00	.....	.....	.....
Toronto	do .....	.....	.....	350,000 00	.....	.....	.....
County of Grey (Group)	do .....	.....	.....	300,000 00	.....	.....	.....
Owen Sound	do .....	.....	.....	5,000 00	.....	.....	.....
Minto	do .....	.....	.....	15,000 00	.....	.....	.....
Howick	do .....	.....	.....	35,000 00	.....	.....	.....
Gorrie and Wroxeter	do .....	.....	.....	5,000 00	.....	.....	.....
Teeswater	do .....	.....	.....	5,000 00	.....	.....	.....
Culross	do .....	.....	.....	38,000 00	.....	.....	.....
Turnberry	do .....	.....	.....	5,000 00	988,000 00	.....	.....
				85,000 00	.....	.....	.....
Town of Lindsay	Victoria .....	.....	.....	25,000 00	.....	.....	.....
Village of Fenelon Falls	do .....	.....	.....	22,000 00	.....	.....	.....
Township of Verulam and Som- erville	do .....	.....	.....	54,000 00	186,000 00	.....	.....
County of Haliburton.	do .....	.....	.....	10,000 00	.....	.....	.....
Fergus	Wellington, Grey and Bruce .....	.....	.....	40,000 00	.....	.....	.....
Peel	do .....	.....	.....	10,000 00	.....	.....	.....
Elora	do .....	.....	.....	40,000 00	.....	.....	.....
Maryboro'	do .....	.....	.....	40,000 00	.....	.....	.....

Nichol	do	do	10,000 00				
Wallace	do	do	35,000 00				
Minto	do	do	65,000 00				
Bruce	do	do	278,000 00				
Howick	do	do	20,000 00				
Listowell	do	do	15,000 00				
Grey	do	do	35,000 00				
Elma	do	do	30,000 00				
Morris	do	do	30,000 00				
W. Wawanosh	do	do	18,000 00				
Ashfield	do	do	10,000 00				
Turnbury	do	do	28,000 00				
Kincardine	do	do	8,000 00				
Town of Whithy	Whithy, Port Perry and Lindsay	do	71,000 00	682,000 00			
Township of Whithy	do	do	15,000 00				
do Reach	do	do	30,000 00				
do Scugog	do	do	2,000 00				
County of Victoria	do	do	85,000 00				
Village of Port Perry	do	do	20,000 00				
Manufacturing Co.	do	do	94 93	222,094 93			
			300,000 00	8,596,541 78			672,500 00
QUEBEC.							
Parish of St. Sophie.	Great Northern	do	4,000 00				
Village of New Glasgow	do	do	2,000 00				
County of Compton.	International	do		6,000 00		225,000 00	225,000 00
St. Pie	Lake Champlain & St. Lawrence	do	20,000 00				
L'Ange Gardien	do	do	10,000 00				
St. Paul	do	do	6,000 00				
Philipsburg	do	do	15,000 00				
Ascot	Massawippi Valley	do		51,000 00		40,000 00	65,000 00
Haley	do	do				25,000 00	
Township of Melbourne & Bromp-	Missisquoi & Black River Valley.	do				25,000 00	
ton Gore	do	do				20,000 00	
Township of Ely	do	do				20,000 00	
do North Studley	do	do				20,000 00	
do Bolton	do	do					
Chambly Canton	Montreal, Portland and Boston...	do	15,000 00				
do Basin	do	do	10,000 00				
County of Pontiac	Pontiac and Pacific Junction	do		25,000 00			
	do	do		100,000 00			
	Carried forward	do		182,000 00			375,000 00

No. 10—STATEMENT of Aid granted to Railways by Municipalities—Continued.

Municipalities.	Name of Railway.	Loan.	Total.	Bonus.	Total.	Subscription to Shares or Bonds.	Total.
		\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
QUEBEC—Concluded.							
Parish of Sherbrooke.	Brought forward.						
do Dudswell.	Quebec Central.	1,000,000 00		50,000 00			
do Weedon.	do	1,000,000 00		25,000 00			
Garthby	do	200,000 00		25,000 00			
		25,000 00		3,000 00			
City of Quebec.	Quebec and Lake St. John	25,000 00			103,000 00		
do Montreal.	Quebec, Montreal, Ottawa and Occidental.	1,000,000 00				450,000 00	450,000 00
do Quebec.	do	1,000,000 00					
do Three Rivers.	do	100,000 00					
County of Ottawa.	do	200,000 00					
S'. Sauveur de Québec.	do	25,000 00					
Côte St. Louis	do	25,000 00					
Village of Ste. Thérèse	do	12,000 00					
Parish of do	do	12,000 00					
do St. Jérôme.	do	10,000 00					
Village of do	do	15,000 00					
St. Scholastique	do	10,000 00					
St. Andrew's.	do	10,000 00					
St. Jerusalem of Argenteuil.	do	25,000 00					
			2,434,000 00	25,000 00	25,000 00		
County of Brome.	South-Eastern.					50,000 00	
Township of Brome.	do					50,000 00	
do Sutton	do					63,000 00	
do Potton	do					25,000 00	
do Farnham	do					20,000 00	
Village of West Farnham.	do					5,000 00	
do East	do					5,000 00	
do Waterloo.	do					30,000 00	
do Drummondville.	do					16,000 00	
County of Drummond	do					90,000 00	

00,000 00

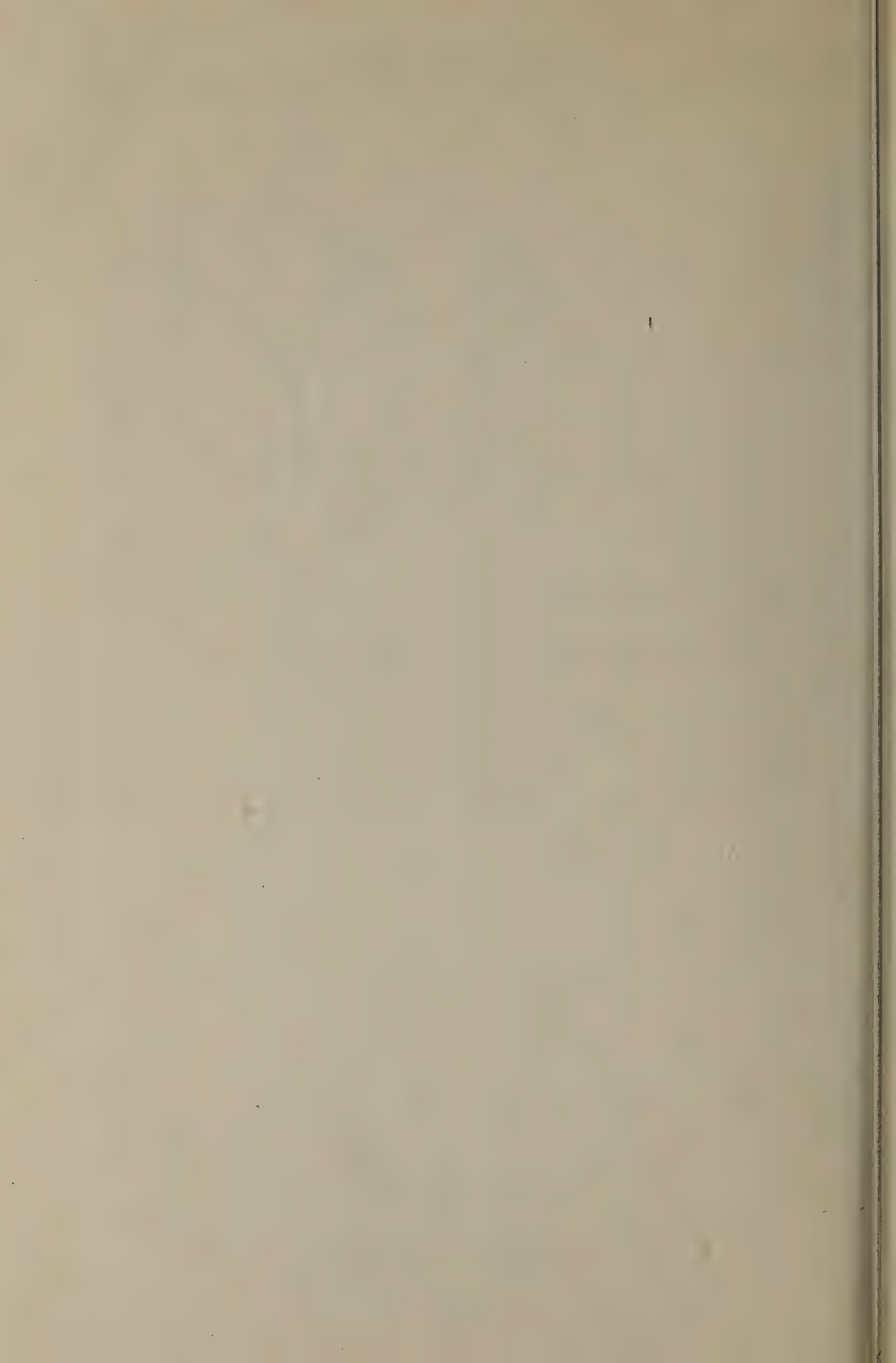
No. 10—STATEMENT of Aid granted to Railways by Municipalities—Continued.

Municipalities.	Name of Railway.	Loan.	Total.	Bonus.	Total.	Subscription to Shares or Bonds.	Total.
		\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
MANITOBA.							
City of Winnipeg.....	Canadian Pacific.....	.....	.....	200,000 00	.....	.....	.....
County of Selkirk.....	.....	.....	.....	35,000 00	.....	.....	.....
Township of St. Andrews.....	.....	.....	.....	35,000 00	.....	.....	.....
Town of Morris.....	.....	.....	.....	100,000 00	.....	.....	.....
County of Westbourne.....	Manitoba and North-Western....	.....	.....	75,000 00	.....	.....	370,000 00
Town of Portage la Prairie.....	.....	.....	.....	50,000 00	.....	.....	.....
do Minnedosa.....	.....	.....	.....	30,000 00	.....	.....	155,000 00
							525,000 00

No. 10—STATEMENT of Aid granted to Railways by Governments and Municipalities—Constructed and under Construction—
30th June, 1885.—*Concluded.*

SUMMARY.

	Loan.	Total.	Bonus.	Total	Subscription to Shares or Bonds.	Total.	Grand Totals.	
	\$	cts.	\$	cts.	\$	cts.	\$	cts.
<i>Governments.</i>								
Dominion.....	45,023,545 33		110,283,505 32				155,307,050 65	
Ontario.....	26,000 00		5,920,984 52				5,946,984 52	
Quebec.....	3,722,856 00		4,500,954 02				8,223,810 02	
New Brunswick.....			3,632,665 00		300,000 00		3,932,665 00	
Nova Scotia.....	50,000 00		2,996,549 00				3,046,549 00	
		48,822,501 33		127,334,657 86		300,000 00		176,457,159 19
<i>Municipalities.</i>								
Ontario.....	300,000 00		8,596,541 78		672,500 00		9,569,041 78	
Quebec.....	2,434,000 00		310,000 00		1,368,000 00		4,112,000 00	
New Brunswick.....	3,000 00		233,500 00		80,000 00		316,500 00	
Nova Scotia.....			150,000 00		100,000 00		250,000 00	
Manitoba.....			525,000 00				525,000 00	
		2,737,000 00		9,815,041 78		2,220,500 00		14,772,541 78
		51,559,501 33		137,149,699 64		2,520,500 00		191,229,700 97



ABSTRACT OF STATEMENTS
OF
FIRE AND INLAND MARINE
INSURANCE COMPANIES IN CANADA
FOR THE YEAR 1885.

*(In advance of the Annual Report of the Superintendent of Insurance, and
SUBJECT TO CORRECTION.)*

In

ps

to

He

OFFICE OF THE
SUPERINTENDENT OF INSURANCE,
OTTAWA, 9th March, 1886.

SIR,—I have the honor to enclose an abstract of the business of Fire and Marine Insurance in Canada for the year 1885.

This abstract has been made from the attested statements returned by the Companies, but must be considered as subject to correction, when I shall have the honor to report to you their statements in full, after personally visiting the head offices.

I have the honor to be, Sir,

Your most obedient servant,

W. FITZGERALD,

Superintendent of Insurance.

Hon. A. W. McLELAN,
Minister of Finance.

ABSTRACT FOR THE YEAR 1885.

FIRE INSURANCE IN CANADA—CANADIAN COMPANIES.

	Net Cash received for Premiums.	Gross Amount of Policies, New and Renewed.	Net Amount at Risk at Date.	Net Amount of Losses incurred during the Year.	Net Amount Paid for Losses.	Unsettled Claims.	
						Not R-sisted.	Resisted.
	\$	\$	\$	\$	\$	\$	\$
British America.....	197,317	19,413,331	18,910,475	120,993	105,210	24,230	None.
Citizens	264,298	24,409,209	22,379,289	168,159	157,087	20,071	4,000
London Mutual Fire.....	124,324	16,488,032	43,104,938	71,287	78,556	3,843	4,203
Quebec	77,029	6,169,770	7,751,430	35,726	34,360	3,266	None.
Royal Canadian.....	282,255	27,702,054	22,180,581	174,590	175,296	12,746	None.
Western	330,904	32,023,378	39,228,394	147,111	138,891	28,929	2,800
Total for 1885	1,276,127	126,205,774	153,555,157	717,866	694,400	93,085	11,003
Total for 1884.....	1,140,428	118,747,547	147,968,945	744,711	763,737	77,065	6,303

BRITISH COMPANIES.

Caledonian	88,281	7,980,371	9,249,259	49,560	48,046	3,683	2,323
City of London	171,888	13,562,146	16,812,081	80,557	86,607	2,101	2,800
Commercial Union	304,442	25,276,758	27,878,153	195,654	186,827	18,356	6,547
Fire Insurance Association.....	126,497	12,467,551	14,200,507	88,717	83,437	10,213	1,624
Glasgow and London.....	161,630	15,609,268	14,501,320	96,014	101,043	2,371	None.
Guardian	150,320	13,791,565	12,694,380	81,369	79,163	3,000	3,321
Imperial	185,177	17,473,895	19,123,050	91,933	80,291	2,571	13,346
Lancashire	208,454	19,694,093	22,573,110	123,009	115,642	21,941	5,000
Liverpool and London and Globe.....	207,212	23,035,956	32,994,197	110,921	110,677	1,636	1,190
London and Lancashire.....	89,974	9,726,741	10,593,812	60,683	64,993	201	1,000
London Assurance	60,932	8,415,264	7,980,032	48,924	46,119	None.	2,805
National of Ireland.....	54,082	6,178,223	5,374,606	37,718	38,091	3,715	2,285
North British	301,557	36,843,755	41,178,675	147,632	155,895	7,237	8,184
Northern	181,260	15,624,008	17,996,138	100,516	105,279	3,691	1,923
Norwich Union	90,185	9,572,014	9,143,660	51,102	48,695	4,300	2,500
Phoenix of London.....	208,022	20,424,018	24,715,136	99,192	91,901	11,064	7,000

Queen.....	222,647	20,761,146	22,227,312	133,346	123,232	2,227	5,000
Royal.....	498,738	52,193,924	106,698,684	300,056	295,008	19,380	7,067
Scottish Union and National.....	60,507	7,941,852	7,160,325	21,549	20,222	3,439	None.
Total for 1885.....	3,371,825	336,624,517	423,394,437	1,903,451	1,895,175	121,126	71,915
Total for 1884.....	3,472,119	354,458,616	413,441,188	2,232,145	2,290,588	135,246	51,163

AMERICAN COMPANIES.

Atna Fire.....	107,688	10,762,522	6,975,275	64,862	54,276	11,709	None.
Agricultural of Watertown.....	70,393	7,555,495	22,567,538	42,883	38,663	4,493	1,850
Harford.....	131,177	11,356,931	11,910,922	75,570	68,868	11,420	None.
Phoenix of Brooklyn.....	58,922	7,918,168	5,386,340	28,218	25,116	4,467	None.
Total for 1885.....	368,180	37,623,116	46,830,075	211,533	186,923	32,089	1,850
Total for 1884.....	367,581	40,777,315	44,097,646	184,406	191,998	13,920	None.

RECAPITULATION.

6 Canadian Companies.....	1,276,127	126,205,774	153,555,157	717,866	694,400	93,085	11,002
19 British Companies.....	3,371,825	336,624,517	423,394,437	1,908,451	1,895,175	121,126	71,915
4 American Companies.....	368,180	37,623,116	46,830,075	211,533	186,923	32,089	1,850
Grand Total for 1885.....	5,016,132	500,453,437	623,779,669	2,837,850	2,778,498	246,300	84,763
Grand Total for 1884.....	4,980,128	513,983,378	605,507,789	3,161,262	3,245,323	226,230	67,456

INLAND Marine Insurance Business in Canada, 1885.

	Net Cash received for Premiums.	Gross Amount of Policies, New and Renewed.	Net Amount at Risk at Date.	Net Amount of Losses Paid.	Unsettled Claims.		Net Amount of Losses Incurred dur- ing the Year.
					Not Resisted.	Resisted.	
CANADIAN COMPANIES.							
British America	\$ 15,012	\$ 3,257,724	None.	\$ 5,423	None.	\$ None.	\$ 5,423
Royal Canadian	14,769	2,779,821	None.	6,990	600	None.	6,694
Western	19,255	4,554,348	28,876	16,085	None	3,300	13,982
BRITISH COMPANIES.							
Commercial Union	49,036	10,591,893	28,876	28,498	600	3,300	25,499
AMERICAN COMPANIES.							
Ætna	946	226,397	None.	None.	None.	None.	None.
Phenix of Brooklyn	1,450	1,377,730	12,072	912	None.	None.	460

RECAPITULATION.

Canadian Companies.....	42,026	10,591,893	28,876	28,498	600	3,300	25,499
British Companies.....	9,999	2,737,164	None.	7,208	None.	None.	7,206
American Companies.....	2,396	1,601,127	12,072	912	None.	None.	460
Total.....	61,431	14,933,184	40,948	36,616	600	3,300	33,165

ABSTRACT of Fire and Marine Insurance done by Canadian Companies which do business outside of the Dominion, and of Inland Marine and Ocean business done by Companies combining these branches, for 1885.
BRITISH AMERICA ASSURANCE COMPANY, TORONTO.

Nature of Business.	Net Cash received for Premiums.	Gross Amount of Policies New and Renewed.	Net Amount at Risk at Date.	Net Losses Paid.	Unsettled Claims.		Net Amount of Losses Incurred during the Year.	Remarks.
					Not Registered.	Registered.		
	\$	\$	\$	\$	\$	\$	\$	
Fire Insurance.....	755,084	68,905,778	71,141,421	488,807	77,208.	13,018	495,120	In all countries, 31st Dec., 1885.
Inland Marine.....	55,966	10,003,923	342,842	19,072	1,302	None.	20,374	
Marine, Ocean.....	38,264	1,163,339	320,600	33,913	690	None.	32,067	
	849,314	80,073,040	71,804,863	541,792	79,200	13,018	547,561	

ROYAL CANADIAN INSURANCE COMPANY, MONTREAL.

Fire Insurance.....	282,255	27,702,054	22,180,581	175,296	12,748	None.	174,590	In Canada, 31st Dec., 1885.
Inland Marine.....	14,769	2,779,821	None.	6,990	600	None.	6,694	
Marine, Ocean.....	133,630	6,190,370	929,076	104,455	7,577	667	94,009	
	430,654	36,672,245	23,109,657	286,741	20,923	667	275,293	

WESTERN ASSURANCE COMPANY, TORONTO.

Fire Insurance.....	1,086,982	99,728,402	102,130,850	708,281	74,572	8,100	701,763	In all countries, 31st Dec., 1885.
Inland Marine.....	127,652	23,318,818	1,149,924	76,600	14,493	3,300	72,708	
Marine, Ocean.....	126,144	7,613,270	612,382	95,917	1,723	None.	79,334	
	1,340,778	130,660,490	103,793,156	880,828	90,788	11,400	853,795	

TABLE I.—Showing the TOTAL ASSETS, and their Nature, of Canadian
CANADIAN COM

Companies.	Commenced Business.	Real Estate.	Loans on Real Estate.	Stocks, Bonds and Debentures.
		\$ cts.	\$ cts.	\$ cts.
British America.....	1833.....	90,000 00	1,350 00	859,903 15
Citizens'	1st January, 1865.....	88,063 35	None.	100,650 00
London Mutual Fire.....	1859.....	None.	1,041 55	34,747 80
Quebec.....	1818.....	32,000 00	None.	79,900 00
Royal Canadian.....	13th August, 1873.	None.	28,000 00	392,585 49
Western.....	August, 1851.....	70,000 00	7,450 00	630,271 36

Companies doing business of Fire and Inland Marine Insurance.

COMPANIES—ASSETS—1885.

Loans on Collaterals.	Agents' Balances and Bills Re- ceivable.	Cash on hand and in Banks, or deposited with Government	Interest due and accrued.	Other Assets	Total Assets.	Nature of Business.
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	
None.	76,037 96	88,389 26	1,077 92	16,855 40	1,133,613 69	Fire, Inland & Ocean.
None.	27,423 24	17,141 95	3,358 79	31,984 13	268,621 46	do and Accident.
None.	*300,445 52	63,963 09	163 50	763 66	401,125 12	do
None.	2,640 13	57,539 50	891 77	805 18	173,776 58	do
19,138 07	45,188 16	201,475 66	None.	21,940 70	708,328 08	do Inland & Ocean.
None.	163,228 84	273,809 18	2,263 21	54,399 60	1,201,422 19	do do

*Including premium notes, \$288,842.73.

TABLE II—Showing the Assets in Canada of British and American Companies—
BRITISH COMPANIES—

Companies.	Commenced Business in Canada.	Real Estate.	Loans on Real Estate.	Stock, Bonds and Debentures.
		\$ cts.	\$ cts	\$ cts.
Caledonian.....	February, 1883.....	None.	None.	91,529 82
City of London.....	1st September, 1881....	None.	None.	102,200 00
Commercial Union.....	11th September, 1863...	None.	None.	176,044 36
Fire Insurance Association	December, 1880,.....	None.	None.	100,000 00
Glasgow and London.....	1st January, 1884.....	None.	None.	119,466 64
Guardian.....	1st May, 1869,.....	None.	None.	102,565 00
Imperial.....	1864.....	None.	None.	103,260 93
Lancashire	July, 1864	None.	3,000 00	50,369 99
Liverpool and London and Globe..	4th June, 1851.....	96,846 45	415,050 00	161,261 67
London and Lancashire.....	1st April, 1880.....	None.	None.	101,859 33
London Assurance.....	1st March, 1862.....	None.	None.	178,690 00
National of Ireland.....	2nd April, 1883.	None.	None.	100,161 00
North British.....	1862.....	73,240 00	77,000 00	498,393 07
Northern	1867.....	None.	None.	100,253 33
Norwich Union.....	1st April, 1880.....	None.	None.	109,000 00
Phoenix of London	1804.....	None.	None.	140,192 26
Queen.....	5th July, 1859.....	2,060 00	None.	185,398 00
Royal	1851.....	120,000 00	None.	689,533 34
Scottish Union and National.....	February, 1882.....	None.	None.	122,673 00

AMERICAN

Etna Fire.....	1821.....	None.	None.	114,352 50
Agricultural of Watertown.....	October, 1878.....	None.	None.	123,250 00
Hartford.....	1836.....	None.	None.	107,733 00
Phenix of Brooklyn.	1st May, 1874.....	None.	None.	123,000 00

panies doing business of Fire and Inland Marine Insurance in Canada.

ASSETS IN CANADA—1885.

Loans on Collaterals.	Agents' Balances and Bills Re- ceivable.	Cash on hand and in Banks or deposited with Government	Interest due and accrued.	Other Assets	Total Assets in Canada.	Nature of Business.
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	
None.	4,348 14	25,636 58	None.	3,500 00	125,014 54	Fire.
None.	7,021 91	7,349 61	None.	5,311 29	121,882 81	do
None.	14,515 36	7,618 83	None.	3,512 50	201,691 05	Fire, Inland & Ocean.
None.	9,964 87	5,526 01	None.	2,500 00	117,990 88	Fire.
None.	26,249 83	26,418 00	None.	4,952 13	177,086 60	do
None.	6,056 03	1,273 43	None.	None.	109,894 46	do
None.	None.	23,819 75	None.	None.	127,080 68	do
None.	18,085 10	105,439 84	1,082 32	750 00	178,727 25	do
1,842 45	4,002 38	50,641 00	7,075 52	2,500 00	739,219 47	Fire and Life.
None.	2,065 18	6,425 19	None.	800 00	111,149 70	Fire.
None.	None.	None.	None.	None.	178,690 00	Fire and Life.
None.	4,627 00	891 57	None.	5,000 00	110,679 57	Fire.
146,000 00	30,592 60	30,710 65	6,618 83	2,500 00	865,055 15	Fire and Life.
None.	4,557 51	7,935 68	None.	3,500 00	116,246 52	Fire.
None.	4,710 47	37,392 94	None.	None.	151,103 41	do
None.	None.	13,471 20	1,242 43	None.	154,905 89	do
5,279 56	6,948 78	11,950 65	234 84	4,150 00	216,021 83	Fire and Life.
22,238 37	33,109 87	6,533 95	None.	7,363 92	878,779 45	do
None.	None.	None.	None.	None.	122,673 00	Fire.

COMPANIES.

None.	10,216 58	13,386 00	None.	None.	137,955 08	Fire & Inland Marine.
None.	14,887 84	None.	None.	None.	138,137 84	Fire.
None.	4,100 77	None.	None.	None.	111,833 77	do
None.	12,231 47	None.	None.	None.	135,231 47	Fire & Inland Marine.

TABLE III.—Showing the Total Liabilities of Canadian Companies doing business of Fire or Inland Marine Insurance.

CANADIAN COMPANIES—LIABILITIES, 1885.

Companies.	Unsettled Losses (F., I. & O.)	Reserve of Unearned Premiums (F., I. & O.) Liability under other Branches.	Sundry.	Total Liability, not including Capital Stock.	^c Excess of Assets over Liabilities, exclud- ing Capital Stock. ^d The Reverse.	Capital Stock paid up or in course of collection.	Surplus (if any) of Assets over Liabilities and Capital Stock.	Nature of Business.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	
British America	92,217 29	511,032 86	24,932 89	628,213 04	e 505,400 65	500,000 00	5,400 65	Fire, Inland and Ocean
Citizens'	24,471 33	148,351 14	46,578 42	219,400 89	e 49,220 57	77,014 00	..... ..	do and Accident.
London Mutual Fire	8,145 44	231,162 74	None.	299,308 18	e 101,816 91	None.	101,816 94	do
Quebec	3,266 34	56,940 00	827 75	61,034 09	e 112,742 49	99,040 00	13,702 49	do
Royal Canadian	21,589 67	199,780 63	None.	221,370 30	e 486,957 78	400,000 00	86,957 78	do Inland and Ocean.
Western	102,187 28	650,931 65	661 73	793,780 66	e 407,641 53	400,000 00	7,641 53	do

TABLE IV—Showing the Liabilities in Canada of British and American Companies doing business of Fire or Inland Marine Insurance in Canada, for the Year 1884.

BRITISH COMPANIES—LIABILITIES IN CANADA.

	Unsettled Losses (F., I. and O.)	Reserve of Unearned Premiums (F., I. and O.)	Liability under Life Branch.	Sundry.		Total Liabilities in Canada.	Excess of Assets over Liabilities. — The Reverse.	Nature of Business.
	\$	\$	\$	\$	cts.	\$	\$	cts.
Caledonian	6,005 97	55,354 83	.....	6,088 69	.....	67,449 49	e 57,565 05	Fire.
City of London	4,900 60	126,516 02	.....	489 90	.....	131,906 42	d 10,023 61	do
Commercial Union	24,903 51	181,763 41	.....	None.	.....	206,666 92	d 4,975 87	Fire, Inland and Ocean
Fire Insurance Association	11,836 74	95,994 46	.....	None.	.....	107,831 20	e 10,169 68	do
Glasgow and London	2,371 00	89,693 00	.....	8,017 06	.....	100,081 06	e 77,005 54	do
Guardian	6,321 29	88,847 79	.....	None.	.....	95,169 08	e 14,725 38	do
Imperial	15,916 52	110,761 43	.....	None.	.....	126,677 94	e 402 74	do
Lancashire	26,941 33	134,386 04	.....	150 00	.....	161,477 37	e 17,249 88	do
Liverpool and London and Globe	2,826 14	167,936 78	65,408 02	1,200 00	.....	237,368 94	e 501,850 53	Fire and Life.
London and Lancashire	1,200 83	55,207 74	.....	None.	.....	56,408 67	e 54,741 03	Fire.
London Assurance	2,805 00	41,732 49	5,873 79	None.	.....	50,411 28	e 128,278 72	Fire and Life.
National of Ireland	6,000 00	28,168 39	.....	None.	.....	34,168 39	e 76,511 18	Fire.
North British	15,420 64	175,380 86	.....	.....	.....	465,801 50	e 399,263 65	Fire and Life.
Northern	5,614 74	106,677 61	275,000 00	.....	.....	117,609 61	d 1,363 09	Fire.
Norwich Union	6,800 00	50,427 94	.....	5,317 26	.....	57,227 94	d 93,875 47	do
Phoenix of London	18,063 72	140,776 34	.....	None.	.....	168,840 06	d 3,934 17	do
Queen	5,226 90	133,940 29	90,000 00	284 81	.....	229,462 00	d 13,430 17	Fire and Life.
Royal	26,447 07	478,380 31	291,857 00	None.	.....	799,684 38	e 79,095 07	do
Scottish Union and National	3,439 27	31,999 45	.....	None.	.....	35,438 72	e 87,231 28	Fire.

AMERICAN COMPANIES.

Alma Fire	11,709 11	37,165 25	.....	None.	.....	49,874 36	e 89,080 72	Fire and Inland Marine.
Agricultural of Watertown	6,343 25	108,956 23	.....	None.	.....	115,299 48	e 22,838 36	Fire.
Hartford	11,419 70	77,392 89	.....	None.	.....	88,812 59	do 33,021 18	do
Phoenix of Brooklyn	4,467 47	31,148 18	.....	None.	.....	35,615 65	e 99,615 82	Fire and Inland Marine.

TABLE V—Showing the Cash INCOME and EXPENDITURE of Canadian Companies
Expenditure in Canada of British and
CANADIAN COMPANIES—INCOME

INCOME (CASH.)

Companies.	Net Cash for Premiums.	Interest and Dividends on Stocks, &c.	Sundry.	Total Cash Income.	Received on Account of Capital Stock not included in Income.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
British America.....	849,314 14	33,653 89	7,108 75	890,076 78	None.
Citizens'.....	264,297 74	5,734 92	9,021 84	279,054 50	1,087 50
London Mutual Fire....	124,324 13	3,632 79	1,895 70	129,852 62	None.
Quebec.....	78,240 72	5,113 57	2,037 45	85,421 74	None.
Royal Canadian.....	430,654 29	23,028 38	8 25	453,690 92	29,217 00
Western.....	1,340,778 09	36,371 81	None.	1,377,149 90	None.

BRITISH

Caledonian.....	88,280 50	4,430 11	None.	92,710 61	.....
City of London.....	171,887 78	4,200 00	None.	176,087 78	.....
Commercial Union.....	335,494 03	7,073 09	None.	342,567 12	.....
Fire Insurance Association...	126,496 95	4,216 92	None.	130,713 87	.....
Glasgow and London.....	161,629 56	4,213 68	None.	165,843 24	.....
Guardian.....	150,319 58	4,498 70	None.	154,818 28	.....
Imperial.....	185,177 23	4,107 20	None.	189,284 43	.....
Lancashire.....	208,453 76	8,918 54	6 53	217,378 83	.....
Liverpool & London & Globe..	207,211 83	36,252 56	5.060 00	248,524 39	.....
London and Lancashire.....	89,973 61	4,049 42	None.	94,023 03	.....
London Assurance.....	60,931 76	6,680 00	None.	67,611 76	.....
National of Ireland.....	54,081 64	4,006 44	None.	58,088 08	.....
North British.....	301,557 22	34,868 72	4,985 00	341,410 94	.....
Northern.....	181,260 46	425 83	None.	181,686 29	.....
Norwich Union.....	90,185 24	5,253 82	None.	95,439 06	.....
Phoenix of London....	208,021 84	6,020 01	None.	214,041 85	.....
Queen.....	222,646 91	2,690 43	None.	225,337 34	.....
Royal.....	498,738 45	23,903 09	6,767 77	529,409 31	.....
Scottish Union and National.	60,507 26	6,167 20	None.	66,674 46	.....

AMERICAN

Etna Fire.....	108,634 07	4,555 00	None,	113,189 07	.....
Agricultural of Watertown....	70,393 44	None.	None.	70,393 44	.....
Hartford.....	131,176 67	1,995 00	None.	133,171 67	.....
Phenix of Brooklyn.....	86,478 52	None.	None.	86,478 52	.....

doing Fire or Inland Marine Insurance in Canada, and the Cash Income and American Companies in those Branches.

AND EXPENDITURE, 1885.

EXPENDITURE (CASH).

Paid for Losses.	General Expenses.	Dividends or Bonus to Stock- holders.	Total Cash Expen- diture.	^c Excess of Premiums over Losses Paid. ^d The Reverse.	^c Excess of Income over Expenditure. ^d The Reverse.	Nature of Business.
\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	
541,792 54	260,414 35	31,811 00	837,017 89	e 307,521 60	e 53,058 89	Fire, Inland and Ocean.
157,087 24	84,193 92	6,097 73	247,378 89	e 107,210 50	e 31,675 61	Fire.
78,556 18	40,019 62	.....	118,575 80	e 45,767 95	e 11,276 82	do
39,360 04	18,538 38	9 752 00	67,650 42	e 38,880 68	e 17,771 32	do
286,741 46	108,210 41	17,236 00	412,187 87	e 143,912 83	e 41,503 05	Fire, Inland and Ocean.
880,828 21	408,079 33	32,000 00	1,320,907 54	e 459,949 88	e 56,242 36	do do

COMPANIES.

48,045 99	19,513 32	.....	67,559 31	e 40,234 51	e 25,151 30	Fire.
86,606 82	41,545 39	.....	128,152 21	e 85,280 96	e 47,935 57	do
204,526 06	68,390 95	.....	272,917 01	e 130,967 97	e 69,650 11	Fire, Inland and Ocean.
88,436 89	33,525 30	.....	121,962 19	e 38 060 06	e 8,751 68	Fire.
104,042 51	45,016 39	.....	149,058 90	e 57,587 05	e 16,784 34	do
79,162 71	36,467 65	.....	115,630 36	e 71,156 87	e 39,187 92	do
80,291 66	45,258 49	.....	125,550 15	e 104,885 57	e 63,734 28	do
115,642 06	46,977 15	.....	162,619 21	e 92,811 70	e 54,759 62	do
110,677 41	47,962 30	.....	158,639 71	e 96,534 42	e 89,884 68	Fire and Life.
64,992 50	22,085 97	.....	87,078 47	e 24,981 11	e 6,944 56	Fire.
46,118 56	16,242 93	.....	62,361 49	e 14,813 20	e 5,250 27	Fire and Life.
38,094 47	16,528 97	.....	54,623 44	e 15,987 17	e 3,464 64	Fire.
155,894 73	78,150 38	.....	234,045 11	e 145,662 49	e 107,365 83	Fire and Life.
105,279 15	37,133 04	.....	142,412 19	e 75,981 31	e 39,274 19	Fire.
48,695 15	23,281 68	.....	71,976 83	e 41,490 09	e 23,462 23	do
91,903 88	51,292 78	.....	143,196 66	e 116,117 98	e 70,845 19	do
129,231 96	47,764 10	.....	176,996 06	e 93,414 95	e 48,341 28	Fire and Life.
295,008 01	123,558 16	.....	418,566 17	e 203,730 44	e 110,843 14	do
20,221 80	11,865 08	.....	32,086 88	e 40,285 46	e 34,587 58	Fire.

COMPANIES.

54,275 91	19,884 13	.....	74,160 04	e 54,358 16	e 39,029 03	Fire and Inland Marine.
38,662 86	25,900 11	.....	64,562 97	e 31,730 58	e 5,830 47	Fire.
68,868 49	22,126 45	.....	90,994 94	e 62,308 18	e 42,176 73	do
47,886 01	18,294 96	.....	66,180 97	e 38,592 51	e 20,297 55	Fire and Inland Marine.

STATEMENT of Citizens' Insurance Company of Canada—Fire and Accident Departments—for the Year ended 31st December, 1885.

Nature of Business.	INCOME—CASH.					EXPENDITURE—CASH.				
	Net Cash for Premiums.	Interest and Dividends on Stocks, &c.	Sundry.	Total Cash Income.	Received on account of Capital Stock not included in Income.	Paid for Losses.	General Expenses.	Dividends or Bonuses to Stockholders.	Total Cash Expenditure.	Excess of Premiums over Losses. — d The Reverse.
Fire..	\$ cts. 261,297 74	\$ cts. 5,734 92	\$ cts. 9,021 84	\$ cts. 279,051 50	\$ cts. 1,087 50	\$ cts. 157,087 24	\$ cts. 84,193 92	\$ cts. 6,097 73	\$ cts. 217,378 89	\$ cts. e 107,210 50
Accident.....	\$ cts. 20,821 49	None.	137 64	20,959 13	.....	5,772 68	11,290 91	.....	17,063 59	e 15,048 81
	285,119 23	5,734 92	9,159 48	300,013 63	1,087 50	162,859 92	95,484 83	6,097 73	261,442 48	e 122,259 31
										e 35,571 15

ABSTRACT
OF
LIFE INSURANCE IN CANADA FOR 1885.

ABSTRACT
OF
ACCIDENT AND GUARANTEE INSURANCE
FOR 1885.

(SUBJECT TO CORRECTION.)

† ABSTRACT OF LIFE INSURANCE IN CANADA, FOR YEAR 1885.

	†Premiums for Year.	Number of Policies, New.	Amount of Policies, New.	Number of Policies in force at date.	†Net Amount in force.	Number of Policies become Claims	†Net Amount of Policies become Claims.	†Claims Paid.	Unsettled Claims		Date of Return.
									Not Registered	Registered	
<i>Canadian Companies.</i>											
Canada Life.....	\$ 959,343	1,991	\$ 3,953,950	18,483	\$ 34,351,765	167	\$ 314,160	\$ 266,655	94,036	None.	30th April, 1885.
Citizens'	53,158	350	541,850	1,237	1,792,693	22	37,712	27,653	7,500	None.	31st Dec, 1885.
Confederation	375,315	1,183	1,970,335	8,436	12,871,312	55	83,625	84,816	10,449	None.	31st Dec, 1885.
Dominion Safety Fund.....	32,190	437	437,000	2,217	2,217,000	31	31,000	31,000	None.	None.	31st Dec, 1885.
Federal	44,468	867	2,309,500	1,062	2,574,454	15	19,000	18,704	None.	None.	31st Dec, 1885.
Life Association of Canada ..	19,943	7	8,000	311	373,650	15	17,429	26,450	6,298	None.	31st Dec, 1885.
London Life.....	27,989	349	403,700	1,192	1,154,527	10	4,283	4,280	None.	None.	31st Dec, 1885.
North American. { General.....	139,022 {	383	1,937,500	2,272	4,194,235	16	35,489	32,489	3,000	None.	31st Dec, 1885.
{ Industrial..	237,665	1,212	None.	360	60,567	7	1,451	1,451	None.	None.	31st Dec, 1885.
Ontario Mutual.....	202,893	1,203	1,706,910	4,642	6,857,566	51	84,086	77,836	11,250	None.	31st Dec, 1885.
Sun.....						30	60,569	63,693	2,238	None.	31st Dec, 1885.
Totals for 1885	2,091,986	8,382	14,942,695	46,593	74,591,131	411	688,744	635,027	.....	.....
Totals for 1884	1,869,100	7,526	12,926,265	42,002	66,519,958	312	461,470	464,293	.....	.....
Increase, &c.—Decrease, &c.....	† 222,886	† 856	† 2,016,430	† 4,591	† 8,071,173	† 99	† 227,274	† 170,734	.....	.....
<i>British Companies.</i>											
British Empire.....	99,110	663	1,563,550	1,345	2,886,390	5	33,000	33,000	None.	None.	31st Dec, 1885.
•Briton Life.....	2,445	None.	None.	49	87,039	None.	None.	None	None	None.	31st Dec, 1885.
•Briton Medical.....	21,464	None.	None.	326	705,159	13	33,672	13,457	20,274	None.	31st Dec, 1885.
Commercial Union.....	20,725	19	35,193	300	701,527	4	9,531	6,162	6,520	None.	31st Dec, 1885.
•Edinburgh.....	14,996	None.	None.	182	459,045	4	9,003	4,867	6,570	None.	31st Dec, 1885.
•Life Association of Scotland. Liverpool and London and Globe.....	68,064	None.	None.	1,379	2,554,430	31	82,600	78,666	55,723	None.	5th April 1885
London and Lancashire	10,560	9	21,827	188	264,798	5	4,120	3,448	2,999	None.	31st Dec, 1885.
London Assurance.....	143,244	564	1,152,500	2,742	4,533,583	19	31,816	31,955	3,881	None.	31st Dec, 1885.
North British.....	849	None.	None.	7	27,121	None.	None.	None.	None.	None.	31st Dec, 1885.
Queen	22,514	13	33,021	313	841,340	13	48,281	19,690	30,020	None.	30th Nov, 1885.
•Reliance	9,014	2	6,000	194	337,278	11	32,532	28,281	5,062	None.	31st Dec, 1885.
•Reliance	12,845	None.	None	281	366,939	5	8,000	8,150	1,981	None.	31st Dec, 1885.
Royal.....	22,224	6	13,000	315	906,910	5	15,368	15,368	1,885	None.	31st Dec, 1885.

Scottish Provident.....	4,704	None.	None.	203,245	1	1,438	None.	31st Dec., 1885.
Scottish Provincial.....	22,827	None.	462	855,910	15	26,684	1,438	31st Jan., 1886.
Standard	297,262	593	4,432	9,088,571	45	137,239	21,049	None.
Star.....	21,162	22	298	67,778	12	21,320	155,686	14th Nov., 1885.
							21,820	31st Dec., 1885.
Totals for 1885.....	803,980	1,891	13,070	25,920,847	195	532,934	479,483	.....
Totals for 1884.....	744,227	1,702	12,330	24,317,172	176	425,235	416,790	.....
Increase, <i>i</i> —Decrease, <i>d</i>	<i>i</i> 59,753	<i>i</i> 189	<i>i</i> 740	<i>i</i> 1,603,675	<i>i</i> 19	<i>i</i> 107,699	<i>i</i> 62,693	.....
<i>American Companies.</i>								
Etna.....	632,445	1,177	12,107	15,851,635	218	301,783	292,069	31st Dec., 1885.
Connecticut.....	90,020	None.	1,667	3,199,537	44	85,904	85,504	31st Dec., 1885.
Equitable	380,226	998	4,464	10,918,279	50	113,395	106,895	31st Dec., 1885.
Metropolitan.. { General.....	8,378	1	164	289,800	3	8,008	23,000	31st Dec., 1885.
Industrial.....								
Mutual Life.....	25,828	1,470	1,368	160,732	7	760	760	31st Dec., 1885.
National.....	6,914	299	422	1,032,669	6	30,679	30,679	31st Dec., 1885.
New York.....	239,822	848	317	320,988	2	1,852	2,000	31st Dec., 1885.
North Western.....	21,501	None.	2,521	6,621,910	38	93,911	103,033	31st Dec., 1885.
Phoenix of Hartford.....	48,261	None.	526	714,887	6	9,068	9,068	31st Dec., 1885.
Travelers.....	139,361	328	1,467	1,704,249	44	59,821	70,663	31st Dec., 1885.
Union Mutual.....	117,770	490	2,815	4,037,540	37	59,860	65,817	31st Dec., 1885.
United States.....	12,486	36	2,720	4,171,584	40	56,528	48,970	31st Dec., 1885.
			204	375,925	2	2,680	2,673	31st Dec., 1885.
Totals for 1885.....	1,723,012	5,647	30,762	49,440,735	497	824,181	841,431	.....
Totals for 1884.....	1,518,991	3,459	27,138	44,616,596	406	639,766	637,003	.....
Increase, <i>i</i> —Decrease, <i>d</i> ..	<i>i</i> 204,021	<i>i</i> 2,188	<i>i</i> 3,624	<i>i</i> 4,824,139	<i>i</i> 91	<i>i</i> 184,415	<i>i</i> 204,423	.....

RECAPITULATION.

10 Canadian Companies.....	2,091,986	8,382	14,942,695	46,593	74,591,131	411	688,744	635,027	.....
18 British Companies	803,980	1,891	13,070	25,920,847	195	532,934	479,483	.....	.....
12 American Companies	1,723,012	5,647	30,762	49,440,735	497	824,181	841,431	.....	.....
							
Grand Totals for 1885.....	4,618,978	15,920	90,425	149,952,713	1,103	2,045,859	1,955,941	.....	.....
Grand Totals for 1884.....	4,132,318	12,687	81,470	135,453,726	894	1,526,471	1,518,091	.....	.....
Increase, <i>i</i> —Decrease, <i>d</i>	<i>i</i> 486,660	<i>i</i> 3,233	<i>i</i> 8,955	<i>i</i> 14,498,987	<i>i</i> 209	<i>i</i> 519,388	<i>i</i> 437,850	.....	.....

*These Companies have ceased doing new business in Canada.
†These amounts are net, reinsurance having been deducted.
‡This refers to policies in Canada only. For the foreign business of the Canada Life, Sun, and Dominion Safety Fund, see page 6.

INCREASE OR DECREASE of Items of Life Insurance in Canada, among the Active Companies, for 1885, compared with 1884.

CANADIAN COMPANIES.

Increase (i)—Decrease (d).	Premiums of the Year.	Number of Policies, New.	Amount of Policies, New.	Number of Policies in force at date.	Amount in force.	Number of Policies become Claims.	Amount of Policies become Claims.	Claims Paid.
	\$		\$		\$		\$	\$
Canada Life.....	92,636	0	d 206,750	1,254	d2,581,029	35	70,938	9,478
Citizens'.....	4,930	115	d 132,850	178	d 173,417	7	22,293	10,967
Confederation.....	26,277	209	d 274,980	385	d 655,036	2	19,098	23,049
Dominion Safety Fund.....	818	132	d 132,000	234	d 234,000	23	23,000	23,000
Federal.....	23,554	536	d1,762,250	452	d1,701,809	2	12,000	12,040
Life Association.....	d 21,642	85	d 114,900	644	d 710,305	5	d 7,101	14,220
North American { General.....	21,259	9	d 106,400	457	d 818,250	13	d 28,495	25,195
Ontario Mutual.....	13,715	326	d 405,750	47	d 7,977	4	d 246	246
Sun.....	34,350	335	d 481,610	835	d1,045,926	1	d 12,282	38,982
Total Increase or Decrease, Canadian Co.'s.....	194,897	507	d 1,612,730	3,399	d 6,916,646	89	d 222,991	166,454

BRITISH COMPANIES.

British Empire	Briton Life.....	Commercial Union.....	Liverpool and London and Globe.....	London and Lancashire.....	London Assurance.....	North British.....	Queen.....	Royal.....	Standard.....	Star.....	Total Increase or Decrease, British Co.'s.....
30,037	108	1,107	2,069	16,791	0	1,607	1,531	1,242	20,946	1,773	69,451
88	0	13	8	32	0	3	1	3	72	7	189
d 483,250	0	d 24,486	d 9,881	d 297,750	0	d 15,679	d 3,000	d 10,700	d 101,580	d 8,517	d 902,085
347	1	6	0	237	0	9	10	4	307	0	873
d 841,777	d 2,000	d 8,563	d 7,772	d 563,611	d 54,280	d 28,494	d 11,712	d 547,262	d 22,482	d1,908,861	d 101,599
4	1	5	1	6	0	6	9	0	7	3	18
d 32,000	d 1,000	d 15,998	d 30,330	d 5,361	d 32,147	d 30,721	d 3,088	d 28,378	d 3,480	d 101,599	d 88,213
31,000	11,000	17,911	1,948	9,262	0	4,984	27,281	3,895	61,588	3,480	

AMERICAN COMPANIES.

Aetna.....	\$ 53,685	\$ 112	\$ 406,647	\$ 620	\$ 958,316	\$ 30	\$ 84,061	\$ 86,066
Equitable.....	\$ 38,999	\$ 148	\$ 77,111	\$ 629	\$ 1,392,096	\$ 16	\$ 38,947	\$ 32,447
Metropolitan { General.....	\$ 1,237	\$ 1	\$ 118	\$ 27	\$ 53,882	\$ 1	\$ 17,000	\$ 1,000
Industrial {								
Mutual Life.....	\$ 25,828	\$ 1,470	\$ 166,605	\$ 1,368	\$ 150,732	\$ 7	\$ 760	\$ 760
New York.....	\$ 90,394	\$ 299	\$ 552,390	\$ 422	\$ 1,092,669	\$ 6	\$ 30,679	\$ 30,679
Travelers.....	\$ 10,589	\$ 254	\$ 229,835	\$ 646	\$ 1,572,244	\$ 18	\$ 35,091	\$ 54,495
Union Mutual.....	\$ 97	\$ 49	\$ 129,250	\$ 109	\$ 75,089	\$ 6	\$ 5,614	\$ 12,496
United States.....	\$ 1,235	\$ 59	\$ 13,275	\$ 134	\$ 142,960	\$ 3	\$ 14,958	\$ 3,757
Total Increase or Decrease, American Co's...	\$ 216,936	\$ 106	\$ 153,600	\$ 60	\$ 116,680	\$ 1	\$ 2,320	\$ 2,427

RECAPITULATION.

9 Canadian Companies.....	\$ 194,897	\$ 507	\$ 1,612,730	\$ 3,399	\$ 6,916,646	\$ 89	\$ 223,991	\$ 166,454
11 British Companies.....	\$ 68,451	\$ 189	\$ 902,685	\$ 873	\$ 1,908,881	\$ 18	\$ 101,599	\$ 88,213
American Companies.....	\$ 216,936	\$ 2,188	\$ 1,008,909	\$ 3,841	\$ 6,213,544	\$ 86	\$ 190,690	\$ 217,273
Total Increase or Decrease.....	\$ 480,284	\$ 2,884	\$ 3,523,724	\$ 8,113	\$ 14,039,051	\$ 193	\$ 515,280	\$ 471,940

ABSTRACT of Life Insurance done by Canadian Companies which do business outside the Dominion, for 1885.
THE CANADA LIFE ASSURANCE COMPANY.

	Premiums for Year.	Number of Policies, New.	Amount of Policies, New.	Number of Policies in force at date.	Net Amount in force at date.	Number of Policies of become Claims.	Net Amount of Policies become Claims.	Claims paid.		Unsettled Claims.		Date of Return.
								Not Resisted.	Resisted.	Not Resisted.	Resisted.	
In Canada.....	\$ 959,343	1,891	3,953,950	18,483	\$ 34,351,765	167	\$ 314,100	\$ 266,655	\$ 94,036	\$ None.	\$ None.	} 30th April, 1885.
In other Countries.....	12,060	34	62,000	230	417,525	1	1,025	1,025	None.	None.	None.	
Total	971,403	1,925	4,015,950	18,713	34,769,290	168	315,125	267,680	94,036	None.	None.	

THE SUN LIFE ASSURANCE COMPANY.

	Premiums for Year.	Number of Policies, New.	Amount of Policies, New.	Number of Policies in force at date.	Net Amount in force at date.	Number of Policies of become Claims.	Net Amount of Policies become Claims.	Claims paid.		Unsettled Claims.		Date of Return.
								Not Resisted.	Resisted.	Not Resisted.	Resisted.	
In Canada.....	202,893	1,203	1,706,910	4,642	6,857,566	30	60,569	63,693	2,238	None.	None.	} 31st Dec., 1885.
In other Countries.....	51,332	83	116,594	502	1,039,404	8	20,106	14,101	6,498	None.	None.	
Total	254,225	1,286	1,823,504	5,144	7,896,970	38	80,675	77,794	8,736	None.	None.	

THE DOMINION SAFETY FUND LIFE ASSOCIATION.

	Premiums for Year.	Number of Policies, New.	Amount of Policies, New.	Number of Policies in force at date.	Net Amount in force at date.	Number of Policies of become Claims.	Net Amount of Policies become Claims.	Claims paid.		Unsettled Claims.		Date of Return.
								Not Resisted.	Resisted.	Not Resisted.	Resisted.	
In Canada.....	32,190	437	437,000	2,217	2,217,000	31	31,000	31,000	None.	None.	None.	} 31st Dec., 1885.
In other Countries.....	1,039	36	36,000	91	91,000	None.	None.	None.	None.	None.	None.	
Total	33,229	473	473,000	2,308	2,308,000	31	31,000	31,000	None.	None.	None.	

INCREASE or DECREASE of Items of Life Insurance done by Canadian Companies which do business outside of the Dominion for 1885 compared with 1884.

THE CANADA LIFE ASSURANCE COMPANY.

Increase (i)—Decrease (d).	Premiums of the Year.	Number of Policies, New.	Amount of Policies, New.	Number of Policies in force at date.	Amount in force.	Number of Policies become Claims.	Amount of Policies become Claims.	Claims Paid.
	\$		\$		\$		\$	\$
In Canada	i 92,636	.....	d 206,750	i 1,254	i 2,531,029	i 35	i 40,938	i 9,478
In other countries	i 1,606	i 10	i 17,000	i 29	i 62,525	i 1	i 1,025	i 1,025
Total	i 94,242	i 10	d 189,750	i 1,283	i 2,643,554	i 36	i 41,963	i 10,503

THE SUN LIFE ASSURANCE COMPANY.

In Canada	i 34,350	i 335	i 481,610	i 835	i 1,045,926	i 1	i 12,282	i 9,769
In other countries	i 782	i 37	i 47,587	i 80	i 64,640	i 5	i 15,613	i 9,608
Total	i 35,132	i 372	i 529,197	i 915	i 1,110,566	i 6	i 27,895	i 19,377

THE DOMINION SAFETY FUND LIFE ASSOCIATION.

In Canada	i 818	i 132	i 132,000	i 234	i 234,000	i 23	i 23,000	i 23,000
In other countries	i 200	i 38	i 36,000	i 30	i 30,000	.....	.....	.....
Total	i 1,018	i 168	i 168,000	i 264	i 264,000	i 23	i 23,000	i 23,000

ABSTRACT of Guarantee Business in Canada, for the Year 1885.

	Premiums of the Year.	Number of Policies New and Renewed.	Amount of Policies New and Renewed.	Number of Policies in force at date.	Net amount in force at date.	Losses incurred during the year.	Claims Paid.	Unsettled Claims.	
								Not Resisted.	Resisted.
	\$		\$		\$	\$	\$	\$	\$
* Guarantee.....	39,987	.....	6,073,550	.....	5,625,100	17,712	14,558	12,900	None.
London Guarantee and Accident.....	22,731	2,378	3,897,500	2,228	3,584,750	3,180	3,010	170	None.
Totals.....	62,718	.....	9,971,050	.....	9,209,850	20,892	17,568	13,070	None.

* Canadian business only.

ABSTRACT of Accident Insurance in Canada, for the Year 1885.

	Premium of the Year.	Number of Policies New and Renewed.	Amount of Policies New and Renewed.	Number of Policies in force at date.	Net amount in force at date.	Losses incurred during the year.	Claims Paid.	Unsettled Claims.	
								Not Resisted.	Resisted.
	\$		\$		\$	\$	\$	\$	\$
* Accident.....	42,081	4,562	8,552,450	2,378	5,142,700	20,814	20,814	None.	None.
Citizens'	20,279	.....	2,773,750	.....	2,308,250	5,823	5,773	400	None.
London Guarantee and Accident.....	15,681	2,179	3,346,650	1,766	2,700,550	2,770	2,670	100	None.
Norwich & London..	3,888	504	746,500	.....	562,500	1,272	3,186	324	None.
Sun	17,299	1,028	1,715,500	1,777	3,136,500	10,611	6,611	5,000	None.
Travelers'	48,014	3,267	6,931,433	2,287	5,545,146	18,284	19,284	1,000	None.
Totals.....	147,242	.....	24,066,283	.....	19,395,646	59,574	58,938	6,824	None.

* Canadian business only.

ABSTRACT of Accident and Guarantee Business done by Canadian Companies which do business outside of the Dominion, for 1885.

THE ACCIDENT INSURANCE CO. OF NORTH AMERICA.

	Premiums of the Year.	Number of Policies New and Renewed.	Amount of Policies and Renewed.	Number of Policies in force at date.	Net amount in force at date.	Losses incurred during the year.	Claims Paid	Unsettled Claims.	
								Not Resisted.	Resisted.
	\$		\$		\$	\$	\$	\$	\$
In Canada.....	42,081	4,562	8,552,450	2,378	5,142,700	20,811	20,814	None.	None.
In other Countries...	296,659	20,865	36,072,193	14,309	23,742,000	175,604	158,004	17,000	None.
Totals.....	338,740	25,427	44,624,550	16,687	28,884,700	195,818	178,818	17,000	None.

THE GUARANTEE CO. OF NORTH AMERICA.

In Canada.....	39,987	.....	6,073,550	.....	5,625,100	17,712	14,558	12,900	None.
In other Countries...	155,691	.....	24,625,950	.....	18,626,050	55,064	50,744	6,169	None.
Totals.....	195,678	.....	30,699,500	.....	24,251,150	72,776	65,302	19,069	None.

ASSESSMENT SYSTEM.

CANADIAN MUTUAL AID ASSOCIATION.

Cash received for assessments, fees and dues.....	.....	\$ 51,155
Number of policies issued in 1885	1,047	
Amount of said policies		2,366,375
Number of policies in force, 31st Dec., 1885.....	3,449	
Amount of policies in force		7,794,740
Number of policies become claims.....	17	
Amount of said claims.....		37,846
Claims paid.....		29,456
Claims unsettled—not resisted.....		4,900
do resisted		5,400

MUTUAL RESERVE FUND LIFE ASSOCIATION OF NEW YORK.

(Canadian Business.)

Cash received for assessment, fees and dues.....	.....	\$ 42,616
Number of new policies reported during the year as taken in Canada.....	2,132	
Amount of said policies.....		6,028,500
Number of policies in force in Canada, at date, including unreported.....	2,205	
Amount in force.....		6,277,000
Number of policies become claims	4	
Amount of said claims.....		17,500
Claims paid		13,000
Amount of policies in Canada unsettled but not resisted.....		4,500

